SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Original Correspondence.

CUMBRIAN METALLURGY—No. II.

WYTHBURN VALLEY.

favourite theme for young geologists is to theorise on the for- on of iron ore. We remember ourselves to have perpetrated novel theory on this subject at the age of 19, which, however, ve since learned to consign to the waste paper basket. The fact re is scarcely any method of metalliferous deposition which is in some place other, assumed by iron. Throughout the moun- districts of Cumberland fissure veins of hematite ore abound. in the metamorphic rocks, on their flanks and in the over- limestone, our vast deposits of iron ore, which are being nually explored. Indeed, in many places the hills are quite with miners and prospecters; and in some of the valleys near haven it is no exaggeration to say that there is scarcely a field a trial shaft ing or boring. The two classes of deposits are ly different in their formation. The veins are generally con- ved, and when roved at two or three points offer a fair certainty ulation. But the hematite deposits, which seem to be of ly aqueous origin, evidently only fill up pre-existent hollows rities, so that no dependence can be placed on their continuity. rations may be driven in good ore, and yet be close upon y or every side. These deposits seem to be of mestone in the limestone adjoining the slate rocks, and in their ted in the to some of the lower coal measures occupying, an analogy ws of the underlying lime. To the south of the the group the Ulverstone and Furness districts, extensive are chiefly on, and over 1,000,000 tons of ore are annually two-thirds is smelted in the neighbourhood; 100,000 tons are shipped from Barrow, chiefly to Wales, and tributed by rail to Yorkshire, Staffordshire, and Whitehaven and tricts. Another 1,000,000 tons of ore is produced surrounding district, of which a little over half is consumed we come to blast-furnaces, of which we shall speak more their mines fer to the West Cumberland ironworks: 130,000 into the Durham works, and the rest to South and Scotland.

nown of these metalliferous districts is the Vale off from all railway communication by some ountain road, which is daily traversed by our old stage coach. This remarkable valley, em- esque lake of Thirlmere, brings us face to face es of nature, and reveals to our view the pro- us laboratory. The mineral veins at present d, iron, and copper.

l lodes of lead oscur on the east side, which is mass of Helvellyn Mountain. Here three veins y the Helvellyn Mining Company, which are old vein, the blue rock, and the east and west. n into the hill, three of which cut the east and promising lode. At the present moment the e are somewhat clouded, inasmuch as in driving st they came to a junction with the blue rock. was spent in endeavouring to find the course nd west past this junction. At length it was d good paying ground, but in a few fathoms n rock. The forehead is still being pushed on spect of the lode again becoming ore bearing. out of the ore is no uncommon occurrence, ing to the adventurers, it should by no means pursue the vein. At the Samson Mine, in the similar impoverishments, which had con- 50 fms.; and we were told the miners would pinched up lode for several hundred yards

The Helvellyn Mine was driven out by Capt. y of some 25,000*l.* From three to six months posed in the stopes, which, however, is wisely ecute the vital points of the mine. Capt. Row, agement for the last year, seems thoroughly ppreciate the true points of operation, and is ng the property.

e being erected at a point on the hill side some dit levels. The mine stuff is run down an in- ith the necessary two pairs in the middle to uld not avoid remarking that one pair, with , would have answered as well as the three ts being fixed at the crossing. At Wilhelm- xony, we saw a similar incline constructed of n appropriate and ingenious contrivance for tom of the Helvellyn incline the orey matters ked, and the good passed on to the crushing the under ones plain, driven by a turbine, for on is made in the gill above. Another crushing chnically as a "chats" mill, then reduces the e rolls to the proper fineness for the jigging placed a little lower than the crushing rolls, he same turbine. The Setz machines are ar- the ordinary fashion. The waste and slimes s go to the buddles, which are circular, and arms, and dropping water to break the surface are worked by a separate water-wheel, and are the jiggers. Indeed these floors, though ca- in various important particulars, are in the Fixed on the mountain slope, they occupy me 10 or 12 ft. below its neighbour. On the ing tables and crushing rolls; on the second ging machines; and on the lowest stage the e houses, and office.

nderstand that some negociations of sale or wtth regard to this mine; which had caused dressing-floors to be temporarily suspended

is valley are quite a recent discovery. The f Wythburn is terminated by an abrupt hill, At its lower extremity a promising vein of ored. The soil has been removed for a few nd a driving commenced on the same lode some 400 ft. higher up the mountain. Here, however, on the day of our visit a fall of earth, through insufficient timbering, had blocked up the entrance. This vein is 30 ft. 6 in. in width, with well-defined cheeks, having a direction of 55° east from north, and a dip of 1 in 7. The rock is a highly metamorphosed clay-slate, probably overlying an interior porphyry, and is very promising "country" for mineral veins. In visiting the famous hematite mine of Knock Murton, further west, we were struck with the similarity of the rocks, and of the superficial indications of the vein, which has been there laid open on the brow of the hill by the process known as costeaning, for a distance of 100 yards. Specimens of the vein stuff at Steel Fell, taken from the outcrop, within 4 or 5 ft. of the grass, yielded on assay 44 and 45·5 per cent. respectively of metallic iron. The slaty matrix at the surface is so far impregnated with iron that three specimens yielded 21·5, 22, and 28 per cent. A second vein of hematite is being driven upon some 1000 yards south of the other. It has a breadth of 19 ft., a dip of 1 in 5, and a direction of about 59° east from north. The level has been driven about 20 fms. along the hanging cheek. Ore in paying quantities, however, has not yet been reached.

These newly-discovered iron lodes are in a separate royalty, and have hitherto been developed by a local gentleman, Mr. T. Dineen; but we learn a company is being formed to acquire these metalliferous veins, and push on their development. The first and best marked of these hematite veins enters the Helvellyn royalty about the middle of its length, but has not hitherto been explored.

A cupreous vein has been proved, and to a limited extent worked, on the Helvellyn estate, and we believe is looked upon by that company with considerable interest. It comes to the grass a little north of Dunmail Raise, and has a nearly east and west direction. On the west of Wythburn, and near Harrop Tarn, is another copper lode, included, we are told, in Mr. Dineen's royalty. This vein has yet scarcely been opened upon, and as it is situate in one of the most inaccessible gills of the lake district, unless an improved method of transit be introduced we fear great expense would attend its development. There is, however, every probability of a line of rail being constructed from the present terminus at Windermere through Ambleside, Grassmere, and Wythburn to Keswick. The route has been surveyed, and confident expectations are entertained that our favourite mode of communication will soon lay open and render available the mineral resources of the Wythburn Valley.

COAL IN STAFFORDSHIRE.

SIR,—I was glad to see from the Notice in last week's Journal that, so far as can be conjectured from the success of the discovery of coal at the Coppy Hall Colliery, it was not improbable that the bed would extend as far as Uttoxeter, as suggested by Prof. Ramsay. If such be the case, a glance at the geological map will show what a large quantity of coal there must be there. I once heard a report that a shaft was being sunk, or about to be sunk, on the property of Earl Ferrers, near Uttoxeter, but I have seen no public notice of it, or heard the result. If coal is got in East Staffordshire might not the same be expected under the same beds in East Nottinghamshire?

Prof. Ramsay, in his "Physical Geography and Geology of Great Britain," says at page 308, referring to the waste of coal from the smoke of the chimneys, "Every coal field in England as it happens is a centre of pollution to the air. But this does not affect the manufacturing populations of these districts excepting in a sanatory, and, therefore, in a moral point of view, and this state of affairs is too apt to be considered unavoidable in the present state of economics and unscientific practice, though it is not so of necessity."

I submit, Sir, that we have come to such a state that such waste and such discomfort as are caused by the smoke fumes ought no longer to be tolerated, and that the Legislature ought to interfere to compel penny-wise and pound-foolish manufacturers to consume the smoke before issuing from the chimnies, as I believe has been done years ago above London Bridge, on the Middlesex side in London —why not everywhere? Sir William Armstrong has stated what he has done by using the Corliss furnace, and also the great success of the Gartsherrie coal-cutting machine. Is it not time that such appliances should be enforced, irrespective of the price? The stores of coal cannot be increased by a crop on the surface every year, like corn. Having long used Arnott's grate in the house, where there is no smoke, I know the advantage, even of this. I never used his stove, but I believe it is very efficient. A WEEKLY READER.

Feb. 19.

THE ISLE OF WIGHT COAL.

SIR,—With reference to the reported discovery of coal at Whitecliff, near Bembridge, in the Isle of Wight, mentioned in last week's *Mining Journal*, it has been proved beyond doubt that it can be burned as fuel, for some of it has been carted into Ryde and there used, but all the local authorities state that the fact that there were deposits of coal in the locality has been known for the last 40 years. The deposit has frequently been examined by geologists and men of business interested in the coal supply, and if I mistake not, Mr. Prestwich, F.R.S., and others, have brought the matter before the Geological Society of London, by reading papers upon the geological features of the district. Not the slightest doubt is entertained that the deposit is a lignite, corresponding with those found on the opposite coasts of the mainland, so that the question as to whether the coal is of tertiary age or of corresponding age to that of the old coal of the North of France, can be very readily answered. Yet, the prospect of the coal being worked is not the less interesting to the people of the Isle of Wight, for it is the brown coal, which is really a lignite, that supplies millions with fuel in Germany, and brown coal is there used to carry on very many important industries.

With regard to the commercial value of the Isle of Wight coal the reports are decidedly encouraging; for it is stated that the quality of the fuel appears to be good, though, of course, not equal to the imported coal. It burns very fairly in the grate, leaving no cinder, but a rather large quantity of white ash. After the recent gales had exposed some of the coal on the beach many persons set to work digging for it, but their operations were soon stopped, by order of the Board of Trade, some fear being, it is said, entertained lest the cliff should be undermined. With ordinary mineral coal at its present price it is quite a question whether the sinking of a shaft and working of the coal would not be worth while, although when coal was at a low price the enterprise would have been unremunerative. This would, of course, depend upon the extent and continuity of the deposit, but it would, at least, be worth a trial, and might prove beneficial to the whole island. Should the deposit prove valuable Firth's, Baird's and other coal-cutting machines might be brought into use, and the Bembridge fuel used in the Corliss furnace, the use of which might even be enforced. As the new coal is, moreover, comparatively smokeless in the furnace mentioned, I cannot see why the consumption of smoke by manufacturers should not be made compulsory on the Surrey side and below London Bridge, just as it is now on the Middlesex side and above bridge.

Feb. 20. RETINITE.

COAL SUPPLY.

SIR,—Under the above heading you gave in last week's Journal a letter from Birmingham, stating that Mr. Reuben Plant had purchased the minerals in the Blakely Hall Estate, which, we are told, is in the Black Country, near Birmingham; the writer is curious to know if the section of the minerals includes the Thick or Ten-yard coal, known as the Staffordshire black diamond; and if so, what other coal? But, above all, the writer is curious to know if Mr. Plant intends it for London use? and if so, how long we shall be before we have it in our market? We are told the Butty colliers, or contractors, in Staffordshire, raise the Thick coal at about 2s. 6d. per ton; if this is true, we suppose we may expect a supply of 1000 tons per day in London at less than 1*l.* per ton; that is, of course, if Mr. Plant is a reasonable man, and will be contented with a fair profit. The delivery, including all charges, from South Staffordshire coal fields to London does not exceed 10s. per ton, and the cost of getting being 2s. 6d. per ton, to which we may add 2s. 6d. for royalty, this will leave Mr. Plant 5s. per ton profit if he sells his coal to us at 20s. per ton delivered in London, and that profit per ton on 1000 tons per day will give a yearly return above the average income of the majority of noblemen. I beg Mr. Plant, and others concerned, will excuse my enquiring, and that some kind friend from the Black Country will favour the writer, and other readers of the Journal, with as much light on the subject as circumstances will admit of without doing injury to any one.

London, Feb. 20. ANXIOUS READER.

OUR COAL SUPPLY, AND FAMINE PRICES.

SIR,—About the year 1300 coal was first discovered on the banks of the Tyne, and was introduced as fuel into London about the year 1350, in the reign of Edward I. Its use, however, was in 1373 forbidden by proclamation, in consequence of the gas being considered to be deleterious to health through corrupting the atmosphere, and for many years after it remained unused. At the close of the century, however, the value of coal became recognised, and its application and consumption extended, until for the year 1871 the total reached the enormous product of 117,352,028 tons, valued at the pit's mouth at 6s. per ton only, or (say) 35,205,608*l.* sterling. In Yorkshire the price of steam coal at the pit's mouth is 18s. a ton, and the masters met on Tuesday at Barnsley, and resolved upon no further advance at present. It was stated that dealers in London are getting fully 20s. a ton; and as the cost of conveyance is not more than 8s. 4d., the merchants do not pay more than 28s. a ton at the utmost. The gains, therefore, exacted from consumers is not only enormous but monstrous in social grievance, and disreputable in regard to commercial morality and cupidity.

It has been stated in the columns of the *Standard* that the railways will convey no coals south of Rugby, excepting for merchants who have wharves or depôts upon their lines or metropolitan termini. If this be the case, the London merchants have a complete monopoly of the trade, and the public are wholly at their tender mercies without the slightest power of immediate redress.

There is unquestionably a limitation to the rights of property and to the freedom of labour, and which is liable to be enforced when either carry their assumed rights beyond public patience; and it is within the scope of possibility that coalowners and colliers will find that, unless they settle their differences, the same rights can be enforced against them as are recognised as just in times of war and agricultural danger—to press men to man our ships and to reap the harvest for the general good—*i.e.*, the protection of our homes and property, and the sustenance of man and animal life. But this will not be the form of State action by the present Government in respect to coal. The owners are the persons primarily endangered. Property should—nay, does—exist for the general good, and when a particular kind of property becomes a public evil not only is that property in imminent peril, but the security of all properties is weakened. To this condition the coal trade is rapidly approaching, and the few great companies and capitalists now combined may soon find that their interests and those of society are wholly at variance, and hence that the public will not sit tamely down while they accumulate gigantic fortunes, and ruin stares them in the face. Every trade in the country depends more or less on coal, and already the pressure has become universal and terrible. The cotton factories need coal equally with cotton; both are indispensable. Gas costs twice as much to make, bread costs more to bake; railways pay more for fuel, and also steam-ships; soap is dearer consequent on the advance of alkali arising from cost of fuel; paper-makers pay double for fuel and more for their bleach, as the alkali trade pays double for coals. Thus all trades of any importance find costs of production advanced in two, three, or half-a-dozen directions, in addition to that of coals consumed directly by themselves. All incomes are reduced, and everyone pays enhanced prices out of diminished means.

Thus, the mischief is wide spread and universally felt, through what the public are beginning to recognise as a wilful combination of the owners of coal fields, and the strikes of overpaid colliers, who fatten in one instance on the necessities of manufacture and trade, and accumulate fabulous fortunes while honest men starve; again, on the other, the workmen already and before the strike got wages enough out of three days' working per week to supply their wants, and to idle and drink the remainder, still subscribing to Unions' funds to support themselves and families when out on strike, living a life of indolence and dissipation whilst fighting the issue of capital and labour. The question of capital and labour is an important one, still the interest of society is far more important, and should first of all be considered. Now, let us suppose the supply of coals for the year to be equal to that of 1871—117,352,028 tons—for if the output has

diminished the sale of slack has increased. The coalowners, at 20s. per ton, receive at the pit's mouth the sum of 117,352,028*l.*, instead of 35,205,608*l.* for the year 1871; while the merchants, at 50s. per ton, receive the enormous sum of 296,380,070*l.* And, pray, who pays this increased cost of supply? Why, the British public. Society is sacrificed to advantage the coalowner, who sells his accumulated rubbish at the surface of his mine at the value of best coals in 1871, while the colliers live on the accumulated funds of Unions, fed from the excess of wages paid in former years for the winning of the material.

The agriculture of the country is first in importance, and indispensable to mankind; but next follow the production and supply of coals; and, as these are both fruits of the earth, and the labourers in each instance rank at the base of the column marking the extreme line between capital and labour, we may ask, in all fairness, what ought and should be the standard prices of wages for those who remain at the bottom of the tree, and have to get their earnings through the application of science and the sweat of their brows? Is it too much to say that 6*l.* per month is ample for the labour of a collier, sufficient for bis maintenance and that of his family; and also, if he be prudent, and exercise abnegation in all indulgences, to place in the savings bank an accumulative fund for his support in declining health and feeble age. To us it seems absurd to expect the general public to put up much longer with the high and ruinous prices now charged for coals. The collier is a workman of the lowest type, and should rank in position with the labourers in agriculture, at gasworks, docks, manufactories, cotton and other factories. He is infinitely beneath the skilled artizan, the educated machinist, the experienced manufacturer, or the approved and trusted overlookers in our workshops and trading establishments, yet he is paid better, and works less, while his intellectual capacity is only suited to aid the movements of agitation, without raising him above the standard of an ordinary common-place labourer.

It is time that these Unions were put down. Society has to pay the costs of these strikes. Steam shipping, railways, manufactures, almost all trades, gas and water works, mining in all its varied spheres—nay, agriculture and commerce—depend on the supply and cheapness of coal. To be at the mercy of coalowners and their workmen is an intolerable nuisance, and the sooner that the Legislature interfere the better, for a famine in coal is worse than a famine in food. England, with 2760 collieries in 1871, alone can supply the former, while Russia and America can make up any deficiency in the latter.—*London, Feb.* 20.

R. TREDINNICK,
Consulting Mining Engineer.

COAL, IRON, AND POLITICS.

ENGLAND AND UNITED STATES, N.A.

SIR,—A passenger travelling over the Illinois Central Railroad from La Salle to Du Quoin crosses 230 miles over a coal basin. This coal extends from 50 to 100 miles on each side of this railroad. Here is an index of the mining, mechanical, and engineering skill, and political status of the people who are to live in the central part of this great continental basin. When the flora of the coal plants grew and were laid down and covered with limestone, shales, and sandstones it was then decided that the future people were to be artizans and utilize steam by machinery, and use this coal for culinary and other purposes. We must suppose that the line of this railroad was mapped when the topography of the coal basins was formed. The safety-valves and driving-wheels of the locomotives were also a part of the system. The growing of these coal plants was a long time prior to the mapping out of the river systems, and a recent geological epoch when considered with reference to the laying down of sedimentary matter on ocean's floor to form the Potsdam sandstone (Cambrian age) bored into at 3000 ft. deep below the Mississippi river at St. Louis, and to the earlier period of the Huronian rocks, and to the dawn of the era when the first stratified rocks were laid on the floors of ancient oceans.

We talk about 6000 years, 600,000 years, and 6,000,000 years. Nature can afford to wait, and measures time by cycles. The order may have been—first, the sun with one planet; afterwards, more were added; and these in time are allowed moons, and in process of time we have the solar system completed. So with the Rocky and Alleghany mountains, they are the backbones, or vertebral columns of the Continent. The rivers are the arteries, and their branches the vein, or circulating system. The lines in the palm are a diagram of the streets in Boston. On a slab of Silurian limestone the small fucoids had mapped the town plat of the city of Vienna. This rock dips 2000 ft. below St. Louis, and we realise that the laying out of the streets of a city commenced at an early era—say, 500,000 years before the coal plants grew. The screw of Archimedes with which he would raise the world, provided he had the leverage, was a fossil in the rock known as Archimedes limestone before the fern plants of the coal era grew, or iron mountains were formed, and we strongly suspect that the old Athenian mechanic picked up one of these shells, and from it fashioned his first iron or wooden screw.

Geologists speculate about where lead, copper, iron, silver, and gold come from. One says fire produced them, another that they were deposited from solution in water, one has a sublimation theory, an injection theory, an infiltration, galvanic, electrical, or other theory. The study should be to understand the system of the veins, and laws governing their arrangement in the strata. You may ask—"Where did the ore in the Iron Mountain come from? The iron ridges at Marquette, the fields of hematite and specular ore on the Atlantic slope from Maine to Alabama; the iron fields of Ohio and and iron mountains of Missouri are all a part of one system. In the grand prairies of Illinois, Iowa, and Kansas we find the greatest amount of elements to grow cereals, and under these rich lands coal veins, five or six veins stratified in the coal measures, one above another, and this fuel stored in water-tight compartments the smallest upthrow fault, crevice, or seam in these coal basins is directly connected with the economical position of the coal, a coal vein 4 ft. thick, and underlying a mile square, or 640 acres of land, when changed to steam, is equivalent to the muscular force of the lifetime labour of 3,000,000 of men; and if we should estimate the latent muscular force buried in the coal for 10 miles on each side of the Illinois Central Railroad, it would foot up to several times the muscular force and lifetime labour of the present population of the globe. The British Isles, with a population of 31,000,000, by the coal there stored, and aid of steam-power and machinery, have a present working force equal to the labour of 75,000,000 men.

The ores in the iron mountains and great iron fields of South Missouri are convenient to the continental coal fields, and stored at such an altitude that the ore will be in an economical position to mine, and pass over down grades to the coal to be smelted. On Lake Superior the iron ores are piled in ridges near the shore, and pass over down grades to propellers, and at a low cost are transported to distant points, where fuel is convenient to reduce the ore to pig metal. The iron mountains of Missouri and coal fields of that and adjacent States, are for the supply of the future dense population of the interior of the Continent. The iron ore on Lake Superior, for the supply of the people who are to live in the basin of the lakes and upper part of the valley of the Mississippi.

The continents are first formed through the agency of economic working laws. These laws continue, and mold the human mind to a form of government to fit the topography of country and utilise its material resources. Muscular and osseous systems must be grown to handle a spade and drill, and tunnel the mountains for railroads—mechanical and engineering skill to plan out the work; poets and naturalists are a part of this system.

In looking over Rogers's "Geological Survey of Pennsylvania," you are amazed at the study of elementary geology and the symetrical deductions of these observers, who had by the eye of true science gauged the vast extent of wealth of coal and iron ores in the basins of that State, and by exhibiting this wealth by geological sections and diagrams, conveyed that vision which the law of nature had revealed to them to the comprehension of the engineer, capitalist, and mining adventurer, and 50,000 operatives are now engaged in bringing this wealth into channels of commerce. You read the name of Henry Darwin Rogers, as one of the authors of this survey, and your mind goes back to the elder Darwin and his "love of the plants," and realise that that vein of culture may have run through the anthracite coal basins of Pennsylvania.

The casual observer of the iron mountains of Missouri sees only a certain large amount of iron ores. The iron smelter sees this ore in relation to the charcoal, stone coal, limestone for flux, proximity to market, and amount of supply for furnaces. The geologist sees this ore in its relation to granite, porphyry, limestone, altitude. The metallurgist comprehends the ore in its chemical relation to silica, sulphur, phosphorus, oxygen, carbon, nitrogen, and magnetism. The physical geographer sees the ore in its relation to the adjacent ridge and valley system, mountain system, and geographical system of the county, state, and continent. And yet has only been seen the effective sides of these iron mountains. And now comes the philosopher to connect the "me" and "not me" of this iron ore, and to see these mountains in relation to the past, present, and future geological history of the country, and their connection with the coming generations of people who are to mine and smelt this ore, and to use it in the many thousand ways recognised for human comfort. He comprehends that ideas existed prior to things, that the idea of an iron mountain existed prior to the planting of the first iron atom. He realises that the human mind is an epitome of the universe; that the laws which hold the planets in their orbits, the crysalline forces that upheave the mountain chains, the ancient gulf streams that transported the detrital matter to form on the floors of ocean's stratified rocks, the dips of coal and other mineral basins, the contour of ridge and valley—all have their counterpart in the human mind. He knows that Nature works by the most simple laws, and that if it were possible to study at this time these iron pits inductively until the mind had absorbed them in all their relations that that mind would see the whole number of iron furnaces that are to be built in the future to smelt this ore, the mining and engineering skill of the people who will use the iron, and the industrial, political, and theological status of the contemporary peoples among the nations. As Plato saw the fact that a republic was an experiment that must always remain an experiment, that all our philosophy begins and ends in the speculative, and, were it possible to carry out to its ultimatum a republic, it would be the absolute of all human governments—the problem being solved by each man being a sovereign, and there being no need of any government; so that this great philosopher saw in his mental vision the American Republic as it exists to-day, and realised that the political virtue of this people must come from the struggle through which they must pass to attain to that ideal. So with a study of the iron mountains and these great continental coal fields, there is locked up in their archives the future politics, theology, culture, and government of the American people.

The Shepard Iron Mountain is magnetic ore. A piece of a few pounds weight, when put into a keg of nails, after having time to magnetise them, will lift a string a foot long, holding them by sympathy. The questien then arises, If this magnetic force will hold a nail a foot distant, and affect the working of the needle of a compass 100 yards distant, where does this sympathy stop? And what is its effect on the vast bodies of ore in the other iron mounds (distant one and six miles), and on the other iron hills and fields in that State and in the Atlantic States, in the Rocky Mountains and Pacific States, and the iron ridges in Lake Superior? Does not this magnetic force or sympathy extend to all these iron deposits, and also to England, Sweden, and Russia? And was this Atlantic cable not running under the bed of the ocean a long time prior to the one we now receive our morning news on from Berlin and London?

The Shephard's Mountain physically may be considered as one of the magnetic or nervous centres of the planet or repository of the Odic force, and may hold a similar position to the constitution and health of the planet as the magnetic centres in the human system owe to the distribution of iron and other metalloids in the human body. Is not all our sympathy between individuals and communities due to the action and reaction of the metals in the human organisation, these working to the same law, with their eroding chemical forces, as seen in the Leyden jar? We know that these metalloids exist in the human body, which we may suppose is a kind of battery, with its positive and negative effects, or its chemical telegraphic action, continually going on between individuals and communities.

An edict of war, the bull of the Pope, a quarrel in the common council, an angry debate in the Senate, may yet be traced to a lack or superabundance of iron or other metals in the human system.

Hegel, the German mental philosopher, by the positive and negative forces and meditation thus formed reaches a starting point for a higher unity; this may take place in the mind of the individual by reflection, reading, or observation, and that by this process the human mind passes through all the stadia of its evolutions and reaches the ultimate truth or "absolute," and by this process connects through the alchemy of the mind the two great streams of the mystic and rational philosophy, the Christian by faith reaching deductively the same stand-point reached inductively by reason, and by this mental process connecting all religious systems with all branches of the natural science.

Dubuque, Iowa, U.S., Jan. 20. JOHN VAN CLEVE PHILLIPS.

INVESTMENTS IN WESTERN AMERICA.

SIR,—I have recently returned from a prolonged tour in the Western States of America, and it may not be uninteresting to your readers to learn my opinion with respect to the prospect of our making profitable investments in some of the many tempting schemes which are daily brought under the notice of British capitalists.

I may observe that I took with me introductions which placed me in most confidential relations with the capitalists of San Francisco, and the largest proprietors of mines in California, Nevada, and Utah. In California, I rode from north to south over a distance of 400 miles, visiting the celebrated hydraulic works of Spring Valley, the gigantic gravel deposits of Laporte, Smartsville, Nevada County, Little York, and Dutch Flat—the used-up district of Sonora, and passing through Mariposa County, where the evidences of failure is attended by the existence of many quartz mills in absolute ruin and decay. In Nevada State, I had the advantage of inspecting the working of the celebrated Crown point, which, although it had yielded nearly a million sterling in the year, was not at the time a dividend-paying mine. In Utah, I had introductions which enabled me to visit the Emma-Davenport and other celebrated mines of Cottonwood. I visited Parley's Park, Big Cottonwood, Tintic, East Canyon, &c.

In San Francisco I had the advantage of the conference with some of the most experienced members of the Mining Stock Board; and to Mr. Garnet, the very intelligent director of the Government Assay Office, I am indebted for a fund of information as to the value and ultimate destination of the vast amount of gold, silver-lead, corn and wool, wine, &c., produced in the Western States. I may further observe that I paid special attention to the causes of failure in mining speculation, both in the case of Californian investors and as regards mines in the hands of New York, Bostonian, and English capitalists, whilst I have endeavoured to accumulate information as to the difficulties which beset enterprises of this nature, and the best modes of overcoming them. It is quite impossible to travel in the Western States without acquiring the conviction that at this moment they present opportunities for the profitable employment of capital, probably much superior to any to be found elsewhere; in fact, it is difficult to speak of them without conveying the idea of exaggeration. To be told, for example, that more than a million sterling of silver was last year taken out of a district less than two miles square, from which absolutely nothing was taken five or six years ago, is a statement scarcely to be believed, and yet such was undoubtedly the fact. Or, again, to state that the ploughman starts on the furrow early in the morning, and sleeps at the end of it at night, has the effect of exciting ridicule rather than belief, and yet it remains a fact that the corn produced last year in California will not find ships enough for export during the whole of the present year. The production of gold, which reached its maximum in 1854, declined steadily until last year, but is again increasing, because that which was obtained under the efforts of individuals is not a million the part of what will reward the wise application of well-organised labour, and the employment of abundant capital. Whether, then, it be in the development of towns, industries, agriculture, irrigation, gasworks, railways, or mines, it may be assumed that there is a scope in Western America which invites the emigration of labour, capital, brains with the highest prospects of success.

Nor is the evidence less conclusive when we go into San Francisco what may be called the bank rate is [illegible] month. Advances for trade purposes, or improvements purposes command from 2 to 3 per cent. per month. City the rate is still higher, and in Salt Lake City it is possible to borrow any money at all, and the rate at which of real estate increases, particularly in the central portion is quite fabulous. This, however, is not extraordinary lation increased nearly 20 per cent. in six months. travel 50 miles between Salt Lake and San Francisco the opportunity of making improvements calculated per cent. per annum on their cost; and I may point as the cost of railway in Little Cottonwood is likely to the traffic of a single year. Great as is the production is utterly insufficient for the due development of the California there is not gold enough to serve the currency for carrying out the public improvements urgently Utah, although there are millions of acres of coal, iron all ready to be brought into use, iron costs 5*l.* per so it becomes practically too costly to lay down in tity as rails. I do not think, therefore, it can be doubted is a sound and legitimate outlet for the plethora of which we suffer here. If you insert this I shall be tinue my remarks in future numbers.

DYNAMITE, AND HORSLEY'S BLASTING POWDER.

SIR,—Allow me, as a practical man engaged in mining pursuits, and deeply interested in the subject on which to offer a few observations on the Home Secretary's new applicable to these explosives. In doing so, I must premise prefer and use Dynamite, and although I refer to it in these regulations and my remarks thereon, apply equally Powder. Each of these explosives are competitors with and find no favour at Whitehall.

Dynamite, notwithstanding the vexatious provisions of glycerine Act, has forced its way, and is now generally great demand in the chief mining districts in England and in railway cuttings and other works. Mining engineers in fact, discovered that Dynamite stands unrivalled in wet ground and hard rock, and under many circumstances gunpowder and guncotton are comparatively useless. It that the provisions of the Nitroglycerine Act, 1869, were all Nitroglycerine compounds, and particularly to Dynamite advice in a letter written by Prof. Abel, who therein absolute prohibition of its importation, transport, and he has subsequently, after full investigation, completely opinion, and openly and freely admitted his mistake made by Dynamite has led to searching enquiries into defects by numerous scientific, as well as practical fessor Abel having undertaken to deliver a lecture agents as applied to industrial subjects before the Engineers, had, of course, to refer to Dynamite and ing Powder as two of those explosives. His lecture on the 14th May last, and has since been published under of the Council, and in it, after candidly explaining the caused him originally to entertain the unfavourable Dynamite, which he unfortunately expressed in his House of Commons while the Nitroglycerine Bill was and after referring in high terms to Mr. Nobel's endeavours to counteract or reduce the sources of danger use of Nitroglycerine, proceeded to describe Dynamite manufactured, as "one of the safest, most powerful, venient explosive agents applicable to industrial added, "the preparation made according to the system by Mr. Nobel, appears to set aside completely, or neutralise objections to Nitroglycerine which could arise out of its This lecture having been printed and circulated, became of discussion at the Institute of Civil Engineers, in two evenings of the 12th and 19th November last, when ness as to Mr. Abel's description as to the safety of Dynamite universally admitted, and not a single suggestion was made by any individual, but the impediments thrown by the restrictions on its transport, storage, and use, glycerine Act, and the manner in which those provisions carried out, were strongly condemned.

Mr. Vernon Harcourt, one of the most powerful writers lately addressed a letter to the *Times* on the subject of the gulation Act, in which he said, "I am not surprised that people should be astonished and disgusted to discover *régime* under which we are living. It was bad enough liament took to creating misdemeanours by the dozen: unlimited powers are conferred on official subordinates ture crimes by the gross, we must all look out for our Parks Bill has passed, and, by what we commonly call 'of Parliament,' the decrees of Mr. Ayrton are now the land. It becomes us, therefore, to study the will of our is not an easy task, for the code is not a very intelligible at least, let us do our best, for the alternative is fine and ment." Mr. Harcourt accordingly proceeded to discuss rules, and ventured to predict that, on the assembling of the House of Commons would not sanction them. He was Government, not being able to defend these rules, decided not to risk an adverse vote, but cancelled them, and substituted of a very different character.

Every word of Mr. Vernon Harcourt's letter, as quoted strongly applicable to the powers conferred on the Home by the Nitroglycerine Act; but there is this distinction between two—Mr. Ayrton was only empowered to curtail the ment of the parks by his rules, but Mr. Bruce is empowered pede and paralyse one of the most important branches of in which a large number of hands are employed, and on is embarked. The penalty for infringing Mr. Ayrton's limited to 5*l.*, but Mr. Bruce is empowered to award the of 12 months' imprisonment with hard labour, or a fine the slightest infraction of his rules, and he has decreed it be so. Again, Mr. Aryton's rules were subject to the Parliament, while Mr. Bruce's are absolute in the first is made the supreme authority in these matters, beyond cept, indeed, so far as the Press and public opinion can him in order. It is true that, according to the title of powers were to continue for a "limited period" only Bill, as introduced, contained a clause limiting its duration year; but this was struck out in committee, in the the morning, on Mr. Bruce's own motion, and he remains master of the situation.

Now, let us see what these new regulations are, so possible to understand them, for, like his famous cab they are by no means clear, but may puzzle the lawyers conflicting decisions in the Courts. Whatever the legal be they appear on the face of them to decree that no other person desirous of using the smallest quantity of Horsley's blasting powder is at liberty to do so unless he obtains ral license from Mr. Bruce, and the license will not be granted the party applying erects, or possesses, an approved magazine and substantially built of brick or stone. This general license obtained will only apply to Dynamite or Horsley's Powder certain thoroughly purified ingredients, of certain specific tities, and thoroughly mixed. Any inferiority in quality in proportions, whether intentional or not, or carelessness subjects the holder of the license, not the manufacturer of ticle, to the extreme pains and penalties Mr. Bruce has award, so that if a mineowner has the misfortune to be supplied the manufacturer with an inferior article, though he may have the best price for it, yet he may, in addition to his loss, be to 12 months' imprisonment with hard labour or a fine. Again, the holder of one of these precious licenses is only to carry Dynamite, &c., from his licensed magazine to the on his own works where it is to be fired, and nowhere step out of the way. If he gives a single cartridge to a

an experiment at a neighbour's works, he is to be full fine or term of imprisonment. He is to be all Dynamite, &c., which has ever been in his maga- ked in a specified way, subject to minute directions, while it remains under his own control, but afterwards, no by whomsoever it be effected." Mr. Nobel has always ad- riage of Dynamite cartridges, in cold weather, in pocket, as being the safest and best mode of thawing but the Home Secretary in effect prohibits this, for any Dynamite, even a single cartridge, shall be car- agazine to the place where it is to be fired in a box, decorated with a long and not very clearly ex- attached thereto, in three languages. The quantity &c., to be stored in any magazine is not to exceed quantity to be carried in an ordinary conveyance is exceed 5 cwts.

breach of any one of these regulations is to subject license to the full term of imprisonment or penalty. minute and objectionable regulations which I do nough has been stated to show that the effect is not public, but prohibition of the article. Why should I have quoted Professor Abel's mature and deliberate safety and value of Dynamite as an explosive, and it known that it does not explode from a spark like gunpowder, it is not so sensitive and liable to explode from percussion cotton, facts which have been placed beyond doubt by the ents of the Guncotton Committee, yet none of these pro- y restrictions are applied to either of these explosives. striction of the transport to 5 cwts. at a time strongly in- he object of these regulations. It is well known that Mr. frightened the railway companies by his Act of 1869 that ll not carry Dynamite, &c., and consequently all inland traffic by cart, and Dynamite has, in fact, been transported half- a time very long distances in this country, and in immense e much longer distances, both by railway and in common the Continent and in the Colonies, and not a single acci- ever taken place, but the expense of transporting so small ity as 5 cwts at a time long distances in this country is prohibitory.

ernon Harcourt, in his letter to the *Times*, stated that the Act constituted Mr. Ayrton "a sort of autocratic Lord of the " but, truly, this Nitroglycerine Act constitutes Mr. Bruce ve imperious and powerful autocrat, and he moreover seems using his power to the utmost to restrict the use of the explosive known, regardless alike of the misery entailed on by forcing them to use the more dangerous explosives and s and injury he may entail on mineowners and others.

mite is found, not only to be one of the safest, but also one most economical explosives known, and, in spite of all op- , it has made its way, and is now held in the highest esti- in a majority of the mines in Cornwall. The managers of ines have most, if not all, of them tried it, in the first in- without asking Mr. Bruce's permission, but he has now issued that if any person parts with a cartridge to a mineowner not previously obtained his license and permission he is to d or imprisoned. The trade is, indeed, to be stopped. Why Mr. Bruce's advertisement appeared in the *Mining Journal* last issue, and, curiously enough, a paragraph appeared in the few days afterwards to the effect that the Stowmarket Gun- Works are being re-erected. Can it be possible that these ory regulations have any connection with the rebuilding of manufactory? It certainly is neither credible nor but the question still remains—Why should such absurd ory restrictions be issued against Dynamite while no special ve restrictions are applied to guncotton?

mand is large enough; why not allow the mine and quarry to choose for themselves, and select the explosive best to their works? and why restrict their use of the safest e, and compel them to use the more dangerous? The policy of stry is understood to be free trade, but under the guidance of nt Ministry it is dwindling into the most narrowminded and terference between master and man, capital and labour, into the details and management of private manufactures ica.—*Truro, Feb.* 19. ——— A PRACTICAL MAN.

ON MINE FRAMES, AND CATCHING SLIME TIN.

I think I have carried out "tin" stamping and dressing efficiently in all its departments, except in the "slime" tin ent. In this, I say, after it has been buddled twice the d middle should be worked separately, which is quite far o carry it with buddles—the tails should then go to good A Mr. Robinson wrote to me he could catch every particle tin without any machinery, and I inform him that the field o him and all the world. My remarks may have called the to our aid, I hope they have, and he may be one, but I have ots whether these chemists can use means to concentrate , and make it fit for the smelters, under their present high of smelting, when it is mixed with such a mass of waste. ull slime contains 4lbs. of tin to the ton after it is buddled. obinson can do this I told him to patent it; if he does, he ely be the right man in the right place; I leave this with ake up the frame department.

s, I think, every kind of frame used within the last 70 e nothing better than the squatters' present frame for tin, room for improvement even in them. I notice they are width and pitch from end to end, and filled with rising ven distances—this is very good, but all know that tin is g off these frames, and it is clear it will continue to do so mpels it to obey its own laws—then the best tin that is these frames stops above the first two or three rising , these first catch the best tin, lighter tin is washed on, n in finer and lighter particles, when a portion will e end of the frame, as it is all at the same angle. The three should be raised flatter, and the next three still ontinued so to the bottom, then let it fall on a 7-feet frame, with a self-acting brush, worked lightly on it, is as of old, as required, when I think but very little to the squatters or to sea, certainly not enough to the enable them to pay dividends. I see no reason why all made in an ordinary mine—say, with a stamps working ould not be passed on over a long frame, with a turned-up brush at the bottom, until all the tin was taken out, ashed with the same water, even to the end of the sett. mines should have more frames. I say long frames at the e will not catch the different classes of tin; a self-acting rking over the lower part of the frames, would keep the ving, and the tin would get under; every class of tin, as ould be handled separately after. I might carry this a per, but I see no necessity for it. I have come to the con- that tin dressing, if properly handled, will not send off half to sea as lead will; it is a rounder grain, and quite a dif- from lead. I am confident but few have a knowledge ality of lead and silver slime that is sent to sea from lead have seen the rivers blue for miles below lead mines, managers even think themselves experts.

ding this tedious subject I have again to ask the smelters ous, and lend the tin adventurer and miners a helping smelt tin ore of a low produce. I am confident it is the the right direction. If they fall in with it, I will use eavours to get up an economical and fast stamps, and dressing-floor, showing all I have remarked on in my fore- ers. I may be in error on some points, but I am now open any real practical man's argment, I do not include the experts, nor any man who does not know tin, as he never . I reply to none but what I know are good practicals, versed in raising and dressing contaminated tin ore; to open to reply either publicly or privately, if they attach names, not otherwise. All must be aware that I have sinking public a deal or valuable time on these subjects; have all classes of men to deal with, men who have crude their own, many of which are grounded on bygone tales, handed down from their forefathers, and too unsound to be noticed in the 19th century. I know there are men who will skim off a hundred of tin from a tossing, and throw back from the best tin to enable them to get the best price from the smelter. This tin is of a lighter class, and not unlikely to have portions of waste, which is not thoroughly burnt, this ought to have gone off with the tin sent off, as the smelter has not yet proved that even in this waste the skimmings mineralise with the tin, or has the least evil effects on the block of tin; proof is yet wanting to prove it is not a good flux for the furnace.

In conclusion, I may remark that I have thrown out a great many hints on these subjects, with the hope that some of them may be useful, and taken advantage of by all connected with tin and other mining and dressing.

I can only reiterate my own views by remarking that I cannot see how tin is to be prevented from being stamped to fine particles and atoms, and sent to sea, but by rougher stamping, and a better division of labour in dividing the ores in classes in dressing; to do this with tin there are four or five essential points to keep in view—1. Stamp rougher; 2. Have good self-acting jiggers to catch the hitch tin; 3. Divide the rough from the slime as early as possible; 4. Have squatter frames improved, and wash over them to the end of the sett. I venture to hint there is far more in the frame under the present price of tin than is generally imagined. I believe frames properly and well pitched are to be made to catch even the particles now seen on the sea beach; atoms must and will come, but by rough stamping and open or round grates they will not be made to one-tenth the present extent. To carry this out, I have to use my endeavours to impress upon the smelters the necessity of thus lending a helping hand to assist those men who are spending their last shilling in working Cornish mines, by which the smelters have for unknown centuries been making fortunes, and also the merchants, and, above all, the mine material seller; and last, not least, are those who labour in and about the mines, and get their bread by the sweat of their brow. I say pull together, to carry out mines so as to leave a larger margin for mine adventurers; we all know a few make colossal fortunes, but, as a whole, I take them to be the worst paid men connected with mining. N. ENNOR.

36, *Hyde-street, New Cross, Feb.* 22.

DRESSING TIN—ORE CRUSHING.

SIR,—I do not think I have anything much to say respecting the few remarks in the letter of "T. T.," county of Cork, which appeared in the Supplement to last week's Journal, only this, that if I knew as much as he pretends to do about dressing tin I should certainly do all I could to prevent any going to waste. What a pity that such a man should remain in Ireland when he is so much wanted in Cornwall; besides, being a Cornishman, he would be received with open arms. However, I think it would be better for him to prove in a more practical way what he can do before saying much about it; besides, I do not think Ireland is the proper place to work his idea out. I have lived a good deal in Ireland, but I never heard of any tin being there, and if it should take him to work out his idea of dressing tin as long as it has taken me to work out the idea of ore crushing, he had better begin at once, or he may not live to accomplish it. Now, after many years, I believe I have succeeded in making my stamping machinery complete, everything so fitted that they can be kept in stock, and put together in a short time, so that in a few days they can be at work.

I was told by a gentleman last Saturday that he had been to Tavistock, and up on the Dartmoor, to see my patent stamps at work, and he said he never saw any stamps work like them, the great speed perfectly astonished him; in fact, he said they were altogether so different from the old stamps that they must be seen to be understood. My advice to all requiring stamps is go and judge for themselves. Look at the short arm that seems to throw the stamps up; it must require little power compared to the old barrel and tongue, projecting out 18 in., and effect a great saving of coal.

With regard to "A Cornish Workman" I have nothing to say to him, only he has mistaken my meaning. I know as well as he does what Cornish working men can do, so he need not be so sensitive. They are like most other working men, can do a great deal either way when they like.—*James-street, Old-street, Feb.* 19.

J. WALKER.

LOSSES IN THE DRESSING OF ORES.

SIR,—It seems that your Glandore correspondent has nothing further to advance on this subject. Well, it has long since been understood that all things terrestrial have their limitations, and is it to be wondered at that he has his? His little effort forcibly reminds one of "a mountain in labour to bring forth a mouse." The sum of his information and knowledge, as furnished to the *Mining Journal* on this subject, may be expressed in a single proposition, thus—tin is being lost, carried away from the mines by the water and tailings; that the only proper way to prevent such a loss is to bottle up all the water and tailings until every particle of suspended matter is filtered and deposited together with the rougher tailings respectively in some vast chain or concentration of receptacles, and then the water may be dismissed into its proper channels as limpid as when it first trickled from the rocks in their subterranean recesses. I wonder if it ever occurred to him what to do with the tailings thus accumulating; but I suppose he did not, as he probably concluded that the only object was to prevent the tin from escaping, and feeling assured that none could escape if the tailings with which it was associated were consigned to some vast receptacle, he grasped the idea with a sort of frensied enthusiasm, which rendered him insensible to everything else.

The puerility of this Glandore luminary is stereotyped by the incoherent remarks his overflowing spirit has given vent to in dreams about "vanity," culminating in some great effort or pretence, and then at once entertaining us with a practical illustration of his own self-importance in constituting himself with Messrs. Ennor and Walker a venerable trio of practicals, as if against whose theories it would be sacrilege to take exceptions. I do not know Mr. Walker other than by his writing in the *Mining Journal;* but Mr. Ennor I do, and am fully convinced that whatever the former gentleman may do, the latter will not consider himself at all complimented by your correspondent's familiarity.

With regard to myself, I have not the least doubt but that I was engaged in the dressing of tin long before he was born; at least, I should so judge from the extreme verdancy of his matter and manner of working; and as he appears to be a man of one idea, and that idea out of harmony with every other person's ideas, it cannot but be a waste of time to pursue the subject any further with him.

Liskeard, Feb. 19. ——— ROBT. KNAPP.

STAMPS—OLD AND NEW.

SIR,—There has been much written lately concerning improvements in stamps, but, generally speaking, very little attention appears to have been paid to the principle of construction, hence guesses have been made in the hope of improvement resulting, and, as a very natural consequence, disappointment has followed. The effect of this is highly prejudicial to the introduction of real improvements, and Cornish mine managers cannot be blamed for continuing to erect the old kind of stamps, no matter what outsiders may say as to their imperfect character. The Cornish stamps is not perfect; no Cornishman of intelligence ever said that it was, but he does say that none of the new-fangled contrivances are so nearly perfect, and that none of them are nearly so economic to work with. There has been some confusion through comparing the steam-hammer stamps with Cornish stamps. This is just as absurd as comparing a horse with a cow. The steam-hammer stamps are not at all suitable for mining purposes where coal is dear, because, although each steam-hammer head will crush more ore in a day than one Cornish stamps head, the cost of keeping the steam-hammer stamp at work, to say nothing of its much larger first cost, is so very much greater that the amount of profit realised is absolutely less. A steam-hammer stamp, running one head, will consume as much steam as, with a good Cornish engine, will suffice to work 48 heads of Cornish stamps for the same time, and the cost of keeping a steam-hammer stamp in repair for 12 months would keep the Cornish engine and the whole battery of 48 heads in equally good order for three years. The steam-hammer stamp, moreover, will be stopped for repairs three times as long during the 12 months as the Cornish stamps would be, so that no reliance can be placed upon statements made from calculations based upon observations of a few hours working of the steam-hammer stamps. I merely make these remarks to show the absurdity of comparing the steam-hammer stamps and the Cornish stamps in Cornwall and mining districts similarly situated; although where coal costs but a few shillings per ton, and the quantity consumed is no object, the steam-hammer stamps could no doubt be advantageously employed, for they take up very little room, and look very pretty.

Assuming it, then, to be admitted that the steam-hammer stamp is not applicable to metalliferous mining, we will come to the Cornish stamps. The principle of these stamps is to crush the mineral by the free fall of a mass of iron upon it, and as the weight of the mass is necessarily limited, it becomes requisite to increase the force of the blow by increasing the height of the fall. Now, the great object to be attained is the utilisation of the largest possible proportion of the power applied in lifting the heads. To attain this object we must keep the work as regular as possible; the axle which transmits the power to the lifter must never be idle, nor must it ever be overloaded. Even working is secured by arranging the cams so that however many cams represent one revolution, that number of stamp heads shall always be in upward motion. And the highest lift with a given power is secured by keeping the shank of the stamp as near the axle as possible. The readiest means of effecting this is by curving the cams upwards instead of downwards as usual. All levers, springs, and similar contrivances can but waste power because the friction is increased, and as is seen especially in the case of springs, the power used to compress the spring, or to obtain any other supposed advantage, is only recovered minus the extra friction, so that the auxiliary only yields (say) 4-horse additional stamping power, whilst 5-horse power has been used to produce it.—*Feb.* 19. ——— K. H. G.

THE STANNARIES COURT.

SIR,—The public are greatly indebted to you for the courageous manner in which you take notice of abuses which stand in the way of commercial enterprise. The Stannaries Court is certainly one of the greatest which afflicts this country at the present moment. It only requires a few dealings with it to convince the most bigoted Tory of its red tapism. One would have thought that, located in the midst of an industrious population, it would have accommodated itself a little to their thrift. Nothing of the kind. It indulges in "fiats," in "cur ad vults," in "orders nisi," in "warrants," in "degrees," in "certificates of compliance," in enormous "fees on appeal," and every other appendage of mediæval barbarism. I have already communicated with the late Lord Chancellor, and the present, upon the unnecessary and cumbrous forms and ceremonies in the superior courts of law, but they are simplicity itself in comparison with the occult practice of the Stannaries Court. Critics of abuses, however, are always told—"It is all very well for you to decry and condemn, but what would you put in its place?"

From the frequency with which I have propounded views on this question, and the close manner in which they have been criticised by the legal profession, I do not hesitate to give an explicit answer. I hold that the administration of justice should be so simple that everyone ought to be taught it at school, and that the science of justice only should be left to mature years. In saying this it must be remembered that three-fourths of the time and labour of our lawyers are taken up in learning the forms, not the principles, of law. Granting this to be the principle, then, what ought to be the practice? A has a difference or dispute with B, and it may be with many others, and he requires it settled. L is the appointed judge. L ought to have sittings every week, for the purpose of hearing the disputes. A ought to be in a position, by himself or his lawyer, to give notice to B, and any others associated with him, that he intends, seven days after the notice, to bring the whole matter in dispute before L, with a view of having a remedy. There need be no "issuing of writs," "filing of bills," "presenting petitions," or "making motions." A simple notice will be all that is necessary. There need be no "filing" or "office copying;" affidavits for all evidence should be oral. No Court fees ought to be paid, because the salaries of all judges and officers ought to be paid out of the general revenue of the country. If judges are to be paid by the country at all for the purpose of administering justice, the whole of the administration of justice should be so paid for, or not at all. The present system of paying Court fees for every little step is odious in the extreme.

It may be asked, "If we abolish the Stannaries Court what will you put in its place?" The answer is obvious. The present County Courts already can have many cases transferred to them from the superior courts, and there is no reason why the whole of the Stannaries business should not be transferred at once. It may truly be said, however, that the County Courts are expensive, and the judges inefficient. This can easily be remedied, however, by abolishing all fees in the County Courts, paying the judges and officers out of general revenue, and appointing really efficient judges, with plenty of liberty to appeal. By these means both the liberty and safety of the subject would be secured. As regards simplicity of procedure, these remarks will apply with almost equal force to all the courts of this country: and if by your publication of them any of our legislators should be induced to take a more serious notice of legal abuses than they usually do, the evils of the Stannaries Court will not have been without their use.—*Feb.* 18. ——— LEX.

NORTH BASSET MINE.

SIR,—I have no doubt it will be a source of gratification to many of my co-adventurers that the affairs of this company have been extricated from the meshes of the Stannaries Court, and we are much indebted to a member of the committee for his timely intercession to release us from, probably, endless annoyances, independent of a needless and heavy drain upon our purses, and the least we can now do is to recoup him the advances he has taken upon himself to make on our behalf.

In the accounts now before me, a copy of which I assume has been sent to all the shareholders, I find that the whole of the just debts of the mine did not amount to above 180*l.* (independent of a questionable demand made upon the company by Messrs. Vivian and Sons, a wealthy firm of coal merchants, I believe, in the West of England, for several years' interest), the non payment of which has necessitated a further outlay of nearly 100*l.* to obtain the removal of the petition from the file of the Stannaries Court.

From information that has been given to me, it appears that a petition was filed by a creditor, some months ago, to wind-up the concern, but on representations being made to him he at once agreed to waive all claim, further than the actual amount due to him for supplies; but before the negociations could be completed the creditors above referred to had joined the petition, the committee having refused to allow their demand for interest, and put a stop to any further arrangement with the creditors of the company; consequently, there was no alternative but to submit to the order being made to wind-up the company's affairs in the Court.

Now, when your readers are made aware of the fact that this mine, and others in the same office in which I have for many years been largely interested, have paid to the above-mentioned firm tens of thousands of pounds for supplies, and without the loss of a single shilling to them, it will, doubtless, be considered very hard upon the adventurers in this company that they should be called upon and compelled to pay such an unreasonable claim; and for my part I cannot but stigmatise the conduct of such creditors as unbusinesslike and discourteous to a respectable company. I am pleased to say that this sharp practice does not extend to all in the trade, and adventurers and pursers would do well to exercise a little discretion for the future in the selection of their coal suppliers, and take care to avoid being mulcted in a penalty of 5 per cent. interest for, perhaps, reasonable credit.

Time was when monthly payments were the order of the day, but in the present state of mining companies must have, and merchants very well know that they must give, credit, otherwise half the mines in the county of Cornwall would have been in course of liquidation, and there is but little doubt, from the high prices charged for all mine material, that suppliers, as a rule, take good care to secure to themselves good profits, and a wide margin for, perhaps, unlimited credit, before sending in their goods to the mines they have the favour to serve. When it is taken into consideration the few bad debts mine merchants make, such arbitrary demands for interest are quite uncalled-for, and ought to be resisted by "one and all." I suppose no trading community in the world is so sure of their debts as Cornish merchants, for so long as there is a substantial shareholder to be shot at so certain is he to obtain payment of his demand by recourse to his haven of refuge—the Stannaries Court—although it may be two, ten, or a dozen years before he is paid—still, he is paid.

So much has been written recently that I need not here discant on the dilatory proceedings of the Stannary Court, but I still hope that further agitation may do something to amend their ways, and bring about a better feeling than now exists with respect to their mode of winding-up the affairs of abandoned mines. It is enough for me to refer to the costs and charges—as stated in the accounts of this mine sent to me—incident to obtaining the order to stay further proceedings, at the same time better to grin and bear it than to be subject to the continuous orders and threats emanating from the Court, entailing on the unlucky adventurers endless annoyance and expenses, the end of which they and their representatives may never live to see. When the tide of improvement sets in the management of the

affairs of companies in course of liquidation in this Court, and when merchants, such as I have unwillingly had to refer to, know how to treat their customers fairly as between man and man, then the cloud of mistrust now hanging over them will drift away, and Cornish mining be held up as an honest, open, and legitimate means for the employment of capital for developing the riches of the county.—*London, Feb.* 19. A Large Shareholder.

TIN MINES WITH STANNIFEROUS ELVANS.

Sir,—One of the axioms of mining is to the effect that wherever the elvans are found to be stanniferous the lodes are sure to be highly productive for tin. The Wherry Tin Mines, near Penzance, were worked beneath the sea, and up to the time of their being inundated 80,000*l.* worth of tin had been sold. Several houses were pulled down, and re-erected at a profit through being built with this tinstone. Some of the largest elvan dykes known are to be found in the neighbourhood of St. Stephen's, St. Austell, and Roche. In the first-named parish is the well-known Terras, the offices of which have recently been moved to Gresham House. Most of the tin raised here has been from the elvans, and not from the lodes. The elvans are very large, but, so far as seen, not particularly rich, yielding an average of 8 lbs. to 10 lbs. of tin to the ton of stuff. This mine suffered through being unduly puffed in circulars, many who went in at a premium of some hundreds per cent. retiring afterwards at a loss. A vast deal of work has yet to be done before the mine can be considered to be in a paying condition. Capt. W. Rowe, in his recent report, says:—"I am of opinion that a further outlay of 6000*l.* to 8000*l.*, judiciously expended, would be likely to lead to satisfactory discoveries." So far a considerable sum of money seems to have been spent in an enterprising and judicious manner. The tin-dressing apparatus appears to be unusually well designed and carefully attended to. The pumping-engine, brought from Cornubia Mine, is a 50-inch cylinder. The shareholders must for some time to come forego sensational dividends, and apply their working capital to developing their property.

Castle-an-Dinas.—The elvan in this mine is 72 feet wide, and yields at the present depth 25 lbs. of tin to the ton of stuff. At 10 fms. the yield is 10 lbs. This pays well, because the tin ground is so cheaply raised, being quarried from an open cutting, and carried to the stamps for a few pence per ton. Profits have been made here when tin fetched not more than 50*l.* per ton. Castle an-Dinas is now being energetically developed: a new engine-shaft is being sunk on the elvan, and 24 new stamp heads erected: this makes the total number 72. A Blake's crusher would be a great addition, as there seems no limit to the supply of tinstuff. This is a good paying property. The adjoining mine is

Belowda Beacon, having the same great county elvan running through the sett. The mine nestles on the brow of a hill of the same name. From this elvan the principal portion of the stream tin of the Goss Moors seems to have been washed. The present depth of the engine-shaft is 15 fms.; at this depth, at a little to the east, a branch of tin was cut north, in places from 600 to 700 lbs. of tin to the ton of stuff. A further sink of 10 fms. might lead to great results. The engine, stamps, and all surface works seem compact and well arranged. The "ancients" have apparently worked the lodes to a shallow depth with good results. Cross-ring the road is

Belowda Hill, understood to be principally owned by Mr. Brydges Willyams, M.P. The mine is in full working order, with promising features. The tinstone is quarried from an open cutting, as in Castle-an Dinas. Lower down is

Brynn, also working on the elvan, but directing more particular attention to the lodes. A good discovery has recently been made here, and the prospects appear very encouraging. The mine is in good working order, and employs 36 heads of stamps. It is intended to purchase a Blake's crusher. Others remain for future mention. It is well worthy of remark that all the above made returns the moment the stamping power was erected. They all produce a black tin of uncommon richness. The, Pol, and Pen.

LEGITIMATE MINING—No. I.

Sir,—If not trespassing too much on your valuable space, I would beg to give to the readers of the *Mining Journal* a short account of the Furze Hill Tin Mine, Horrabridge, Devon, a company to work which was formed on the sole merits of the property without any puffing, and has within the period of two years been brought into a profitable state. This mine was started in May, 1871, and nearly the whole of the shares subscribed for by persons resident in the neighbourhood. Three water-wheels have been erected for pumping, drawing, and stamping, and a fourth is now being proceeded with. The old workings have been drained, and tin ground laid open on the several lodes to the value of 8000*l.* On Dec. 14 last the first parcel of tin ores was sold, 4 tons 18 cwts. 2 qrs. 6 lbs., realising 46*l.* 7*s.* 4*d.*, the proceeds of six heads of water-stamps for two months, and there is now preparing for market another parcel within a few hundred weights of the like amount raised during the succeeding two months, and returned by the same stamping power. Further stamping power is now in course of erection, and will be shortly at work, when the returns of tin will be doubled and profits realised, and which by adding more stamping power can be proportionately increased.

The amount that has been laid out on this property in erecting water machinery, &c., is under 6000*l.*, which I think will compare favourably with the many foreign undertakings with their large capitals. I may add that the mine is proving to be of greater value than was represented in the prospectus, and if this course were adopted by all *bonâ fide* companies a larger amount of capital would be expended in developing ligitimate mines, of which there are several well worthy the attention of investors in the counties of Devon and Cornwall. This mine is open to the inspection of anyone at all times, and would well repay a visit, as in these days of dear coal water machinery can be seen at work to great advantage. It has been my aim for many years to bring mining into better repute, but this is one of the first companies started on the plan of only stating the bare facts in the prospectus, and which being more than realised is personally a great satisfaction.

25, *Cheltenham-place, Plymouth, Feb.* 18. Edward Bettesley.

P.S.—If all intending investors were to expend a couple of guineas in obtaining a report from some experienced agent on any property that they were desirous of embarking in, there would not be so many worthless mines foisted on the public, and which only bring disgrace on ligitimate mining.

THE MINING DISTRICT OF CHACEWATER.

Sir,—Now that the mines in this neighbourhood have got into fair working order, a few remarks on their present and future prospects may not be uninteresting to the readers of the *Mining Journal*. Commencing with the most important of them—

Great Wheal Busy, we notice with pleasure that everything is in a very forward state, and that the surface works have been well and ably laid out. The new 90-inch engine went to work on the 13th inst., and is now in a fair way of forking the water. The stamps is also in good working order, and has plenty of work before it in breaking the many hundred tons of tinstuff which have been raised from the Black Dog lode during the past twelve months. Messrs. Lean, Jose, and Co. have the warm sympathy and good wishes of all in the neighbourhood, and it is much to be hoped that they will soon meet with a substantial return for their generous outlay and plucky endeavour to set the district alive once more.

Wheal Daniell, to the east of the preceding mine, is rather quiescent at present. The former committee of management foolishly let the water rise from the bottom to the 32, and it has never been forked out since, in consequence of which nothing has been done with regard to the proper exploration of the mine, and they are simply "digging out her eyes," as old miners say. Unless a more spirited system of working is speedily adodted, we fear Wheal Daniell will become a thing of the past.

Killifreth Mine, as is doubtless well known, was originated some 12 months ago by Messrs. Googh, Buckingham, and T. Michell. The mine was then divided into 6000 shares, of which the promoters held one-half, receiving 15*s.* per share for the remainder. At the last account, when a dividend of 2*s.* per share was declared, 2700 shares stood in the promoters' names, but on Thursday last it was reported that 2000 of that number had been sold to the Miners' Bank, Truro, at about 10*s.* per share. Whether this proceeding will tend to improve the price of shares remains to be proved. That Killifreth will make a lasting mine in the Black Dog part is doubted even by her most sanguine admirers, and unless the present company speedily take steps to fork out the old mine, their chance of another dividend appears rather precarious.

Unity Wood is, we are happy to say, in a very flourishing and prosperous condition. Their pumping-engine is working well. The steam-stamps is being rapidly erected, and last week 6 tons of black tin were sold at 78*l.* per ton. To *bonâ fide* investors (not to brokers and speculators) Unity Wood presents a good opportunity of making money. This is the writer's own opinion—an opinion gathered from personal knowledge of the mine and its executive.

Were Rose United only gone to sleep a little sounder than at present, the kindest remark to make would be *De mortuis nil nisi bonum*. Miner.

ST. STEPHEN'S TIN AND COPPER MINES (ST. AUSTELL).

Sir,—Since I last addressed you I learn that these mines are opening out magnificently, and rich tin ore is being sent to surface. I have seen in the office at Crosby House three great blocks of tinstone, weighing about 7 to 8 cwts., which have arrived from the mines. An assay produced at the rate of 488 lbs. of black tin per ton. One of the large blocks contains from 5 to 6 cwts. of black tin per ton, whilst some of the smaller rocks contain from 40 to 50 per cent. of tin. These fine tinstones are worth looking at, affording, as they do, such "weighty" evidence of the great riches of this property. Tin is now being sold, and as soon as 30 or 40 stamps are erected, in addition to the eight now at work, the monthly sales of tin will be very large. I hear that it is intended to have 100 stamps put up as soon as possible, to be followed by a second 100 so soon as the spacious dressing-floors are prepared, and the heavy machinery is in its place and doing its duty. At present the tinstuff is being obtained above adit, whence very large quantities can be supplied for years. The lodes, which are said to be stanniferous in the Godolphin Mine, are well known to be stronger, and far richer in "Dowgas Tenement" (part of the St. Stephen's) adjoining, whilst the "discovery" just made in the Fortescue Mine, and said to be on a caunter lode, running from the Great Hewas Mines, so far affects the St. Stephen's Mines, inasmuch as the said caunter lode has to traverse the whole length of that property before it reaches the Fortescue Mine. Cassiterides.

London, Feb. 20.

DIRECTORS OF MINES.

Sir,—Promoters of mines, in order to "float" their concerns, ordinarily have recourse to men of wealth or position, and obtain the use of their names as directors to convince the public that the projects are fair and respectable. The directors are sometimes of the needy class, although of good family connections, and are, therefore, glad to share with the promoters the premium charged for the properties submitted to the public. The number of directors for a mine is sometimes five and sometimes seven. Once appointed, they have the control of all the arrangements for working. They can appoint and discharge managers, captains, clerks, &c., at pleasure, and their visits (which, unhappily for the companies, are too frequent) are looked upon with fear by the persons in charge, because, owing to the fickleness of their character and their ignorance of mining, agents, &c., are frequently discharged summarily for the most trifling reason. It is a great pity that those who subscribe the capital for working the mines do not see their error in retaining such directors. They are a nuisance in mining; knowing little or nothing themselves of mining matters, they shackle the hands of those agents who are competent to direct the affairs. Not only so; they charge the companies for their time and expenses on useless journeys to the mines—these expenses in some cases amounting to many hundreds a year. It is not very often that a mine floated by directors works long. Capt. Teague wisely threw overboard the directors in Carn Brea Mines and shut up the London office. Many other companies had better follow his example. Miner.

NORTH WHEAL CROFTY MINE.

Sir,—It appears that the quantity of produce exhibits a large decrease:—

	Four months ending June, 1871.	February, 1873.
Tin	about 45½ tons	about 32 tons
Copper	about 119 tons	about 16 tons
Arsenic	about 111 tons	about 100 tons

In June, 1871, a new calciner was proposed and afterwards erected, and the quantity of arsenic soot has since decreased. In October, 1872, the agents reported that but for a large fall of ground the return of tin would have been 4 tons more. On the strength of this it was naturally expected that there would be a better return for the four months ending February, 1873, but the quantity of tin is actually 5 tons less than the preceding four months' return. The state of affairs seems anything but encouraging to— One not Behind the Scenes.

TERRAS MINE.

Sir,—I learn from a report specially printed in last Saturday's Journal, and carrying the names of Capts. Wm. Rowe and Wm. Nichols, that a further outlay of 6000*l.* to 8000*l.* on Terras may lead to satisfactory discoveries! It seems, therefore, that all the wonderful discoveries already made are not proving satisfactory, but that, on the contrary, a large capital must yet be expended in hunting for something still greater. This is but poor news for us sanguine shareholders, especially for those who bought at a heavy premium. On the other hand, let us hope that the change of the "office" will be beneficial to the company's interests on the market. I hope the chief shareholders will readily contribute their quota of the thousands yet required to enable discoveries to be made that "may be" satisfactory. The holders of the shares already purchased would, doubtless, be glad to know where all this extra capital is to come from; and it does seem strange that it should be required after all the extravagant puffery of the property.

That the mine was unduly lauded in the pamphlets and letters scattered broadcast over the country is now clear. The capital laid out on it would, no doubt, have been much more profitably expended on some mines, now under a cloud, in the neighbourhood of Tavistock and Calstock, and with one of which the same parties were at first connected. But it is easier for prophets to prophesy successfully out of their own country: some men go immense distances in search of fortune, while, had they but eyes to see, it might be found at their feet; not but what the mine in question will, doubtless, prove a fortune to some people, if not to others. But, see the inconsistency of mining men: money flows in in profusion to pound a miserable elvan for a very little tin, while lodes in another district, containing not only tin in plenty, but an abundance of silver besides, fail to draw a single pound out of the same pockets! However, once in for it one can only make the best of what now appears a poor bargain, and I can only hope that assurance will soon be given that the company will be able to raise capital sufficient to make Terras a successful and lasting mine. Observer.

EAST TERRAS MINE.

Sir,—It is very wrong for persons to undertake positions or duties and not to fulfil them. The directors in East Terras have been repeatedly urged to cause a meeting of the company to be called, but they have failed to do it. The annual rent payable to the lord under the lease is now a large sum, and daily augmenting. The company should meet and determine either to work or wind up. I would immediately petition the Vice-Warden for an order to wind up but for the awful delays incident to his Court. Once placed there I might not live to see the end of the business, but if a meeting be not held shortly I must reluctantly take that course, whether I live to see the end or not.—*Feb.* 17. A Creditor.

GREAT LAXEY MINES.

[We have been requested to publish the following letter, which was addressed to the *Isle of Man Times*, in answer to a statement which appeared in that paper of the previous week, and was referred to in last Saturday's Journal.]

Sir,—We, the undersigned agents of the above mine, having read an article in your paper of the 8th inst., charging us in terms of the most sweeping character of mismanagement, in reference to the new jigging machinery, as being incapable of treating the lodestuff of the mine as heretofore; and, further, wasting large quantities of jack—evidenced, as they say—by the ores now found on Laxey beach.

In replying to the charge, we are bold to state that on visiting the Laxey beach—before the new machinery was started—we found it similar then to its appearance at the present time; and the stuff containing blende, from its oxidised state, must have been accumulating for many years. And let us ask the question as to how many hundreds of tons of this ore must have gone into the river from the mine long before blende ore was a saleable article; and must the new machinery be charged with the waste product of the last 50 years which the sea has carefully stored, now and then returning it to the beach?

The "smashing up" referred to of the old machinery consists of three hutches or tubs. If we entered into discussion on the dressing of ores, and the best known appliances for that purpose, we should only expect those who have made it their study to judge of our acts. Therefore, we cannot explain to the writer in your paper the effect of scientific principle relative to the various densities of matter contained in the various kinds of material with which we have to deal. For instance, if you employ a shoemaker to make a watch you will have a bad timepiece; whilst, on the other hand, the watchmaker attempting to make shoes would subject the wearer to wet feet.

The so-called new jigging-machinery is not new, but has been, and now is, used in the most extensive lead mines—the Van, Lisburne, Minera, &c.—and is a decided success, and is capable of treating the Great Laxey ores as well as in any other mine. We have the greatest possible proof of the suitability of the new machinery in the great increase in the returns of mineral, without which it could not be done at all.

We should not have taken any notice of the remarks made in the article in your paper but for the possibility of some shareholder not being in a position to sift the matter for himself, and so be misled, which evidently was the intention of the writer.—*Feb.* 14. J. Polglase, F. Reddicliffe, J. Ball.

WHEAL WHISPER TIN AND COPPER MINE.

Sir,—As your correspondent still maintains his "incog." I must guess once more. If not a "bear," what is he? A man with a grievance satisfied with the bread and butter, but must object to the way in which it is cut? We are in perfect accord so far—that we both have faith in the mine and its prospects. He admits that the profits of this year ought not to be spent in machinery and permanent work, so that future shareholders should benefit at the expense of the present, and says it is fairly chargeable to capital account. Now, as that is what the directors did, we agree again, and if he will write to me we shall soon agree altogether. I deprecate this sort of correspondence; the mine wants no such bolstering up, and can well afford to trust to time and its profits, which will reach him even in the obscurity he has chosen, and in course of years, perhaps, he may rest there and be content.

Portugal-street, Feb. 20. R. Larchin, Secretary.

THE WEST MARIA AND FORTESCUE CHANCERY SUIT.

Sir,—Some time after the commencement of the suit a gentleman who, from his long and intimate acquaintance with the laws and customs of mining, was eminently qualified to form a sound judgment on the merits of the case, visited the neighbourhood of the mines, and after personally inspecting the encroachments complained of, and obtaining information from other sources, he, on his return, gave his opinion in the Journal. This opinion being by no means favourable to the company, was represented as written under the influence of prejudice, and the few remarks which recently appeared in the Journal are spoken of in still more uncomplimentary terms. Should the secretary deem it politic to extend this controversy some interesting little matters will probably come to light, and provided this happens to be the case, I venture to express a hope that he will accord to me such an amount of courtesy as may be fairly due from one correspondent to another, and that all imputations of motives will be avoided as much as possible.

The secretary is somewhat hypercritical in his observations with regard to the Master in Chancery. As before observed, on the filing of the Bill, the company made an application to have the matter referred to arbitration. This question was heard in chambers by (if not a Master in Chancery) an official of the Court deputed by the Vice-Chancellor, whose opinion was that the matter in dispute did not come within the meaning of the arbitration clause, which applied to the settlement of any question which might arise in connection with the land in grant by the West Maria lease, and not to land of another proprietor. The point was then argued from time to time before one or two Vice-Chancellors, who called for further evidence, and afterwards time was taken to consider. At a certain period of the proceedings, an its appearing that one of the parties to whom the lease was granted (and who was the principal negociator on the part of the company at the time of the application for the lease) had actually refused to become a party to the suit, the Court held that under the circumstances they had no power to refer the case to arbitration.

This point being now settled, the main question is a very plain one. West Maria and Fortescue are two separate and distinct grants from different proprietors—the two grants being worked by the same company. For several years past the entire produce of the Fortescue land (amounting to many thousands of tons) has been hauled through the West Maria shaft, dressed on the West Maria floors, carted over the West Maria roads, and the whole of the refuse deposited on the West Maria land. The owners considering this to be a step altogether beyond the conditions of the lease, and that if they permitted it to continue they were, at least, entitled to some amount of compensation, made an aplication to the officials of the company, who not only declined to consent to the compensation asked for, but they held that they were "at liberty to continue in the course they had adopted without leave, license, or authority for the term out." Fearing that if this were continued they might lose control over their own property, the proprietors of West Maria filed a bill in Chancery to obtain redress. Your Correspondent.

Feb. 18.

EAST LLANGYNOG MINE, AND ITS MANAGEMENT.

Sir,—Relative to the stormy meeting of this company, reported in the Supplement to last week's Journal, I hope you will allow me a few observations.

It would appear to be a fixed principle of all directors, managers, &c., to ignore anything respecting which shareholders may feel justified in asking explanation, if he does not happen to belong to the class who have to do with the formation or management of the monster capitaled companies. He must be put down by force. The directors propose each other, also the auditors, and everyone connected with it in business. They seem to stick to one another as long as they can, by a no doubt inflexible rule; and if their large number of shares which is apportioned to them at first, and which the public have not kindly relieved them of for a valuable consideration, in the event of any unpalatable proposition being made by any so-called dissatisfied ones, and which would be the means of throwing daylight on many things, and improving and developing to its full extent the property, and placing it at its true value, every effort is made to induce them to withdraw such, as being a want of confidence and wholly uncalled for.

Such was performed at this meeting to its fullest extent. The simple asking of questions relative to the management, expenses, and knowledge of the experience of the men conducting this property were deemed insinuations. [illegible] were not wanting to make up by those who ought to have known [illegible] tion, as servants, did not permit them to ask impertinent questions, [illegible] were severely called to order by the meeting. A great number of holders, as well as a few present, desire to have a resident superintendence, to undertake the chief superintendence, both underground and [illegible] wages, buying materials, &c., and thoroughly devoting his whole [illegible] new trials, and so developing the mine that more than 21 tons a month turned, as has only been done since this company started. It is the special inspection to be made shortly will be the means of giving the shareholders their present position and the prospective value [illegible] as for the last eight months it has gone down from 1 penny to [illegible] saleable, and not one word have they been permitted to know of the management been.

EMMA MINE.

Sir,—Can any reader inform me of the cause of the continued [illegible] market price of these shares, and the delay of the directors in publishing [illegible] statement? The present output of ore will preclude the possibility of dividends, and it appears to be a mystery to those in the locality why the small shipments of ore by the following letter in the *Salt Lake Tribune*:

"*Alta City, Jan.* 25.—It would not be unreasonable on the part of [illegible] suppose, in this advanced state of the winter season, with the immense [illegible] now on our hands, that the shipments of ore would be materially [illegible] such of the producing mines as are within easy access of Alta, [illegible] down even more ore than when the ground was bare, but the [illegible] the 'epizootic' among the horses and mules will have a tendency [illegible] from all the mines. It is true the Emma, from some unaccountable [illegible] has decreased the shipment of ores from 100 to 50 tons, or thereabouts, [illegible] last eight days, but this is *not* owing to their lack of ores or the [illegible]

Bedford-square, Feb. 19. Holder of 36 Shares.

UTAH SILVER MINING COMPANY.

Sir,—As one of your subscribers who cannot attend the meeting of the [illegible] named company, I trust you will kindly allow me space for a few [illegible] at 25½ on the faith of statements furnished by the office respecting the prospects of the mine—statements which subsequent events have proved utterly unreliable and unwarrantable. Large sums of money have been [illegible] out bringing us tangible results; the shares were rigged up to a high [illegible] and the only success hitherto attained has been in extracting [illegible] pockets of confiding shareholders. The persons who placed the [illegible] public, and tickled us with telegrams in which the word "splendid" [illegible] chief place, have no doubt feathered their nests well with the [illegible] the price paid to the vendors (say, 20,000*l.* or 30,000*l.*) and the [illegible] in the shape of capital and premiums. We are now in the last [illegible] and two liquidators, our additional capital gone, and we wake [illegible] find Mr. Murphy in London, and the directors—good [illegible]—utterly unaware of the concern being up to the neck in debt. [illegible] fiecently contribute the handsome sum of 1500*l.*, or about 2*l.* per [illegible] of the mire they have plunged us into; and it is with some [illegible] their complaint that the general body of shareholders have [illegible] debenture scheme. Is there any wonder that no confidence [illegible] capacity and executive skill? The whole history of the [illegible] last, with the "rigged" market and the "unbeknown" debt, [illegible] distrust and discontent. The reconstruction scheme is a clever [illegible] wind by squeezing recalcitrant and indignant shareholders. [illegible] on our chafed shoulders.

The directors would have shown some compunction for their [illegible] and commission, as well as some confidence in the mine's future [illegible] ability to recoup us the losses we have sustained through them, [illegible] suited us with their trumpery contribution of 1500*l.* But, unhappily [illegible] ford to return voluntarily a portion of our wasted capital, as to [illegible] buy a lead mine, as was proposed for Last Chance. No, we must [illegible] pay the part of shuttlecock to the battledoor of the officials.

In conclusion, I must say that the directors and Mr. Murphy [illegible] settle their suspicious differences about the contraction of the [illegible] Murphy will fearlessly publish his telegrams, which he says [illegible] litating the operations of Mr. Hussey's bamb-bailiff. Our officers [illegible] so much at loggerheads, and pull so indifferently together, that [illegible] ful man who derives comfort as to the future from great outlay [illegible] In short, if the mine is not a complete sham, my only hope [illegible] in the substitution of men of proved mining and business ability [illegible] sweep of those who have taken our money, and pitched it [illegible]

NEW QUEBRADA COMPANY.

Sir,—In reply to Mr. F. Hemming's letter in the Journal of [illegible] only say that I am no match for him in abuse, but I believe I [illegible] reasoning and adherence to facts.

I shall, therefore, pass by all his irrelevant epithets, only saying [illegible] wrong in insinuating that I and the writer of a letter signed [illegible] and the same person. I know nothing whatever of this writer, [illegible] agree with him. Mr. Hemming wishes to make it appear that [illegible] proposed railway is the easiest and simplest thing possible. It [illegible] eight or ten years of time and 300,000*l.* of capital have already been [illegible] in the attempt? And as there is "not an atom" of difficulty in [illegible] why should the company be asked to agree to the "construction" [illegible] the proposed contract? Mr. Hemming is obliged, after all, to admit [illegible] for he says 85,000*l.* a-year "is no doubt a very high price" (I agree [illegible] ous one); and he agrees with me that the New Quebrada Company [illegible] 50,000*l.* of new capital (a great deal more will, I believe, be wanted) [illegible] me, and then admits that I am right in all essentials. Why do [illegible] some of his friends wish to paint matters in so rosy a colour? Why [illegible] be frank, and admit some of the drawbacks? Why does he ignore [illegible] certain persons now have the "call" of 7000 shares at 2*l.* old per [illegible]

When he objects to my statement that the 85,000*l.* has to be paid [illegible] because, he says, "the company has the option at the end of ten years [illegible] the railway by giving a profit on the prime cost," why does it not [illegible] to tell us what the terms of that option are? Ten years will be [illegible] Mr. Hemming must be aware that he who induces others to buy [illegible] value is certainly as bad as he who induces them to sell below. [illegible] once forced up to 32*l.*, and Phosphate Sewage to 6*l.* Where are [illegible]

When Mr. Hemming implies that in two or three years there will [illegible] 400,000*l.* per annum one does not know what to think of him: [illegible] here characterise the statements. Why, a friend of mine informs me [illegible] of dividend for the next three years or more can be sold at 2 per [illegible] I, therefore, will put Mr. Hemming to a proper test. If he believes [illegible] last hint purchase the Quebrada dividends for the next three years [illegible] shares) at 2 per cent. per annum; If he will do this my friend [illegible] in communication with Mr. Hemming's broker (if a member of the [illegible] and the purchase can be at once completed. I fear, for my friend, [illegible] ming will not agree to this proposal, the probabilities being that [illegible] penny of dividend will be paid during the three years. However, [illegible] he believes in his own statements. For a paltry 2 per cent. he [illegible] magnificent dividends he has been dangling before the eyes of the [illegible]

[For remainder of Original Correspondence see to-day's [illegible]

THE TRETOIL TIN AND IRON MINING COMPANY.

The arrangements for the erection of stamping [illegible] dressing-floors are being proceeded with with all possible [illegible] and the directors hope to commence stamping in [illegible] the latest. The reserves are being largely increased [illegible] the tin lode going east in No. 1 level; they are [illegible] across the lode at this point to ascertain the width, [illegible] pected will prove to be somewhere between 20 and [illegible] they have been driving the lode is worth about 25*l.* per fathom, [illegible] ground that requires to be taken down before the cross-drift is [illegible] been let at 32*s.* per fathom. The lode is very easy to break, and [illegible] stamped at a small expense, so that this is a most important point [illegible] itself make the mine a valuable property. In this level the lode [illegible] as can be ascertained about 24 ft. wide, and is laid open from the [illegible] going east about 50 fms.; counting the underlie of the lode the [illegible] surface to the level is about 23 fms., so that in this level alone [illegible] roughly estimated at over 70,000 tons. In Nos. 2 and 3 levels they [illegible] to have split and made two separate lodes, and cross-drifts are [illegible] prove the south portion; in No. 2 level a large lode 12 ft. wide has been [illegible] which appears to be some distance south of the lode on which [illegible] carried on their operations. This is in all probability the other [illegible] No. 1 lode, and the drift now being driven is intended to prove [illegible] not. It should be mentioned that the drift is a considerable [illegible] where the lode was cut, so that it will also lay open a good [illegible] The cross drift in the No. 3 level is being driven from the eastern [illegible] south. After crossing a lode 12 ft. wide (tin and iron) this drift will [illegible] 10 ft. of paying tin ground into clean killas, then through a branch [illegible] worth 27 lbs. of tin to the ton of stuff into killas again, since which [illegible] again changed, and there are strong indications that the second [illegible] be met with at any moment. When this point is proved the present [illegible] out counting the second half of the lode in the lower levels, [illegible] 100,000 tons, may be safely put down at 140,000 tons, so that the [illegible] undertaking will really only be limited by the appliances for stamping [illegible] the ore.

There can be no doubt that this company is in possession of [illegible] not the best) pieces of tin ground in the county of Cornwall, and [illegible] that sufficient iron ore and tinstuff is now being raised to pay all [illegible] good profit to the shareholders, although the stoping on the [illegible] menced, and the tin being raised is merely what comes away [illegible]

Godolphin United (St. Stephen's, St. Austell).—[illegible]

there is no mine in the county that can stand the test of its [illegible] immediate neighbourhood better than this. Most of the farmers [illegible] speak of its value—the Yellands and Brokenshirs in particular. [illegible] father of the present Mr. Brokenshir had a free grant of the sett, and [illegible] before breakfast he commenced operations, not knowing it would [illegible] point in his future life. He began quarrying, and before he returned [illegible] more than 90*l.* worth of tin ore. He went on working, and soon [illegible] of farms. There are many others who can thus speak of it to [illegible] but, strange to say, not much has been done below the water-level, [illegible] accounted for by the non-speculative feelings of those individuals in [illegible] ful machinery, and perhaps the selfishness of the fortunate one [illegible] to get as much as he could without any outlay during his take, or [illegible] in his grant. This is evident from the enormous openings or [illegible] surface down to the water level, and very little more can be done [illegible] machinery. The only alien that had to do with the mine was the [illegible] shall, of Leeds, who not feeling satisfied with his manager, and the [illegible] tions in general, abandoned the undertaking without the erection of [illegible] nery, and after the lapse of a few years (for now steam machinery [illegible] before it will again resume its wonted value by way of returns to [illegible] became the property of the present owners.

School of Mines, Jermyn Street.

GEOLOGY—LECTURE III.

...tures on "Lakes, their Origin, and Geographical and Geolo-
..." is being delivered on Monday evenings at the Geological
RAMSAY, F.R.S., Director General of the Geological Survey
...dom.

...f the Cambrian and Silurian Epochs, and the Lakes
Sandstone," formed the subject of Prof. RAMSAY'S
In the two preceding lectures I discussed Fresh and
, and showed you in the first place that a great pro-
...es of the northern hemisphere, both in Europe and
...nected in their origin with the occurrence of great
might say that of all the lakes we know, perhaps
...shwater lakes, and they are fresh because the drain-
..., which flows into them at one end, flows out again at
...rtain regions there is a class of lakes which are salt, because
...ater running into them, there is none running out; they have
...kes occur in the west and more dry parts of North America,
...a central Asia, &c.

...lectures I have a much more difficult subject to deal with; I
...o prove that in old periods of geological time some of these for-
...n this table, of the stratified rocks were not formed in the sea,
...but were formed in great lakes. It is a hard subject to prove,
...en attempted heretofore, except in one case, and then barely
...formations of rocks shown in this column on the screen have
...ow or other by the action of water. Rivers carry sediment to
...ok on the cliffs, and waste them away, and the mud, and sand,
...duced are carried away (as well as that produced on the land
...ecies) by running water, and carried into the sea by tides and
...read about over the sea bottom. The creatures that live in the
...&c.—die, and their remains are buried in these deposits at the
...y this means we know that these formations, beginning with
...Cambrian, &c., have been deposited in the sea. But the small
...ells found in freshwater strata, and their total absence in many
...ult matter to prove to absolute demonstration that those strata
...d in fresh water.

...which I have to speak are the Cambrian, lying in North Wales,
...Shropshire. These rocks are mottled and red sandstones and
...ceedingly scarce in them, and for a long time none were known
...parts none have been found to this day. Nevertheless, in Pem-
...have been found, a crustacean, with a shell more or less of the
...few of these are found in the Cambrian and one or two fossil
...they are found they occur not in the red strata, but at the base of

...Also on the surface of some of these strata when the beds are
...like sun cracks formed by the action of the sun's heat. On
...e, too, you find a number of round holes or depressions, like
...esent day after rain has fallen on hardly solidified mud, and
...ll that formed by raindrops now. The inference to be drawn
...nomena is that that mud was for a time exposed to the sun's
...of rain had fallen in that almost the most ancient of geological
...that the sun baked it much more, and caused the cracks in it,
...the water overflowed it, and deposited a new sheet, and so we
...the rain and the effects of the sun's heat fossilised.

...where the fossils are so few, we suddenly come to the Lingular
...mbers of the Lower Silurian strata, where fossils occur in great
...and great numbers of a bivalve shell—Lingule. All these
...ly such as must have lived in the ocean at that time. If we
...the Upper Silurian we find similar kinds of marine life—cuttle
...ale, &c.—and all inhabitants of the sea. Then, if we pass into
...(next above the Silurian), which occupies a broad tract of
...Wales, Shropshire, Herefordshire, and Monmouthshire, we find
...of sandstones and a red marl: all the strata are coloured red,
...ming, perhaps, two-thirds of the whole. The marl is simply a
...small proportion of carbonate of lime. Throughout these red
...found, and those are chiefly in the lowermost and uppermost
...examine the Ludlow rocks (in the upper part of the Silurian)
...ming with fossils, but from that point upwards the numbers,
...and general species, begin to decline, the shells are generally
...warfed and poor looking in appearance. They become fewer
...more and more tinged with red. There must be a reason for
...the Old Red Sandstone are quite "conformable" to (or lie regu-
...rocks, showing that there was a regular succession of strata,
...of sand and mud did not stop, and something occur to
...life, or prevent it from continuing to live on, but that it was
...to some other area where the conditions were more favourable
...area the conditions were unfavourable; let us endeavour to
...conditions were. In the very topmost strata of the Ludlow
...the Upper Silurian, and so-called because well seen about the
...find small fragments of stems of land plants and the seeds or
...plants called Lycopodiacæ. In all the strata below these no
...d. This clearly proves, though the strata are marine, with a
...of Silurian life, the near neighbourhood of land, for the plants
...ffed into the sea, got water-logged, sunk to the bottom, and
...chances are that plants existed long before this time, but as
...are probably deposited in open seas no plant remains have been
...I think the portion of the sea in which the strata containing
...mentioned were deposited was more or less land-locked, and
...beginning to get at the origin of the red sandstone itself. In these
...the plants there are the remains of fish of various genera—On-
...&c.—but passing upwards you suddenly come to new forms of
...their nearest analogues at the present day in inland areas. For
...dosteus of the North American rivers is covered with hard bony
...are very much like those of the fish found in these beds and in
...of the Old Red Sandstone. A fish now known to inhabit the Nile
...Africa very closely resembles some of the fish found in these
...addition to these, another fish lately found in the rivers of Aus-
...Ceratodus, has a closer resemblance to a fish of the Old Red Sand-
...thing which lives now or in other geological periods. Large
...pterus and Pterygotus—occur high up in the Old Red strata,
...of sea shells occurring with them, or with the majority of in-
...are found. Taking all things into account—the notable absence
...the presence of these fish which have their nearest living analogues
...I think we are entitled to draw a conclusion that these strata of
...were not deposited in open seas, but that they were deposited in
...Why do the shells of the Upper Silurian period begin to dis-
...first? Because the quality of the water was changed, the forms
...were dwarfed, and the others fled into open seas.

...a piece of Old Red Sandstone, and examine it carefully, you will
...a great number of grains of sand all touching each other, and ce-
...by pressure by a little lime, or by peroxide of iron, and examined
...the grains will all be seen to be rounded. If by chemical pro-
...which gives the colour to the rock, be discharged you will find it is
...of peroxide of iron that surrounds each grain—when discharged
...purely white. In the sea I can see no reason why the iron should
...in the form or a peroxide; in fact, all sea strata that we know any-
...never red, they are blue, black, green, or sometimes in the case
...yellow, but never red. In the open sea there is no reason why iron
...ld. In the Swedish lakes of the present day it is well known
...deposited in the form of round grains that lie at the bottom of
...nes in small nodular masses, like the ironstones of the coal mea-
...are deposited now from solution in water, and I am told that
...cause. So abundant is this deposit that the iron is a valuable
...ce in that country; the farmers farm various portions of the
...en, after leaving it for a time, come back to it and find a new de-
...en, that it is only in lakes that iron ore is being deposited, and

...ndstone is not a wide-spread rock, as are the various members of
...ation; it is much more local, and only found here and there,
...umstances. [The lecturer then referred to two geological dia-
...en to show how he conceived the waters of the Upper Silurian
...en turned into lakes.] Here you have the Lower Silurian rocks
...waters, the waste of which supplied the material for the Upper
...uppose a portion of the sea bottom raised gradually up at one
...(at the end furthest from the exposed Lower Silurian rocks shown
...e diagram), a portion of water becomes barred off from the great
...water running into it it would become, in course of time, a fresh-
...the change from salt to fresh would be gradual, and a portion of
...ms would continue to live on in it for a time, though these
...forms, and even these would disappear at last, and no more sea
...h the rest of the period.

...connected with the glacial period which I think has been some-
...off, and not sufficiently urged. It is well known that at a late
...the North of Europe was beneath the sea, and all lakes on the east
...navian chain, formed, so to speak, an extension of the Baltic Sea of
...By-and-bye the land rose out of the sea, and what had previously
...sea were now freshwater lakes (scooped out by glaciers before
...The waters would at first be very salt, and the creatures living
...e marine, and as the lakes were freshened by rivers, many of these
...ared, though not entirely, for there are still some forms which are
...still manage to live on; and something of that kind, I believe, took
...es. So that the fact that you get a creature in both salt and fresh
...o evidence that the latter strata were formed in the sea, but to me
...of the contrary. At the top of the Old Red Sandstone strata you
...and one or two fresh water shells, fresh water mussels, anodonta,
...ving in our ponds, but of different species. In Scotland the Old
...much more largely developed than in England, and differs from
...respects. Before the Old Red Sandstone began to be deposited,
...Grampians stood up above the sea level, and the whole Highlands,
...med land. The sea played against this land, and rivers ran over it,
...diment into the waters. The base of the Old Red consists of boul-
...conglomerates, above which lie numerous beds of red sandstone
...the midst of the strata in the Ochils Pentland Hills are beds of
...the beds are red, except here and there where they pass at top or
...r rocks. They show the same gradual change of Silurian life as in
...the higher beds ocenr similar plants, fish, and fresh water shells.
...liffs where the rocks are inclined at high angles (and on a smaller
...land) the bottom beds are seen to be boulder clay with large boul-
...but angular, then sandstone and marl. You will remember that
...re I referred to the boulder clay of a recent period (geologically
...taining large angular boulders. I believe that the Grampians, as
...sent down glaciers into those old lakes, and that this was the origin
...clay and boulders. I do not dare to assert that this great lake or
...Red Sandstone period in Scotland was scoped out by glacier ice;
...rkable fact that we find evidence of glaciers at that period, and that
...ing to do with the circumstances connected with these lakes. The
first person to suggest the theory of the lake origin of the Old Red Sandstone was Mr. Godwin Austen, and if it can be established it will open out a new field for geological enquiry by revealing something of the continental as well as the marine areas of those periods.

THE MINES REGULATION ACT.

IMPORTANT MEETING OF COLLIERY MANAGERS.

The largest meeting of colliery managers and underviewers of Yorkshire which has ever been held took place in the Assembly Room of the Bull Hotel, Wakefield, on Saturday. Amongst those present were—Messrs. C. Bradley, Leeds; — Maddison, Woolley Colliery; S. Robertshaw, Farnley Iron and Coal Company, Leeds; A. Lightowler, Leeds; W. Brogden, Wortley; J. Tate, Brittania Main Colliery; — Holdroyd, New Hall Colliery, Middleton; B. Keightley, Lofthouse; G. Johnson, White Lee Main Colliery, Birstal; T. Willis, Osmondthorpe Colliery, Leeds; G. Fowler, Leeds; S. Firth, Wakefield; — Robinson, Middleton Golliery Company, Leeds; S. Steer, Woodhouse Colliery, Sheffield; — Cormack, Waterloo Colliery; — Shepherd, Willow Bank Colliery, Barnsley; — Howcroft, Woolley Colliery; — Musgreave, Barnsley; D. Lipsey, Featherstone Main Colliery, Pontefract; — Savells, Rock Colliery, Leeds; — Lightowler, Cross Green Colliery, Leeds; — Hadley, Waterloo Main; — Sheldon, Leeds; J. Elliott; J. Normansell, &c. Mr. C. Bradley, was called to the chair.

The CHAIRMAN said he had great pleasure in presiding over such a large and influential body of gentlemen connected with the management of the collieries in all parts of Yorkshire, and whose presence showed the great interest that was felt with regard to the appointment of colliery managers. It appeared from some of the applications made for certificates that the Home Secretary did not recognise underviewers as those who should receive them. In doing so he (Mr. Bradley) considered the Home Secretary had gone outside of the Act of Parliament. For his own part, he felt convinced that it was intended that certificated managers were to be those persons who were at the colliery during the day, ready to remedy any accident that might take place, and not gentlemen who had the supervision of a number of collieries. To work a mine safely it was necessary that a manager should be at it during the time it was working, ready to see to the ventilation, state of the roof and machinery. Many of the present colliery managers were men who by their practical experience, energy, ability, and sobriety had been promoted to that position by those who were best able to judge of their capabilities. The 26th section of the Act, however, appeared to him to provide that a manager should be a person who should have the entire control daily of a colliery, whilst the 31st section was compulsory on the part of the Home Secretary to grant a certificate of service to all persons who had acted as manager for 12 months before the passing of the Act, yet many who had applied were well qualified in every respect, and had complied with the provisions as contained in the Bill, had been refused.

Mr. KEIGHTLEY said he understood by the Act that all persons who had acted as managers for a certain period were entitled to certificates. At the time of the passing of the Act he, with other managers, was in London, and he recollected Mr. Fothergill coming to him and saying, with regard to clause 26, that the men who were to be managers were to be the underground stewards, who had the daily supervision of the mines. To those men certificates were to be granted, although he (Mr. Fothergill) at the same time admitted that his own manager could not write his name, yet he was in every way qualified under the Act of Parliament as it stood. Reading the Act, then, in the same light as the members of Parliament who passed it, it was plain that no one man could have the management of 10 or 20 collieries. Still, he believed that the Act would yet come out quite clear, and that the underground stewards would have certificates granted to them. The Act said that a man before receiving a certificate should have had the management of the top and bottom, but it was thoroughly understood that the men who went down a mine daily, and had the entire control of the underground workings, were those whom the Legislature intended to be the managers. He knew one mining engineer who proposed to be the certificated manager for several collieries, but how he could do so and comply with the Act of Parliament he could not see. He believed, however, that a number of those to whom certificates had been refused would yet receive them.

Mr. LIGHTOWLER said that as daily supervision was required of the manager it was plain that he must be a person who went down the colliery every day. On reading the Act he felt that he and others in the same position were entitled to certificates, and he believed that if the 3000 underviewers acted together they could not be refused what Parliament said they were to have, for he believed that members in voting for the Mines Regulation Bill always believed that those who went down collieries daily were those who were to be the managers. They must, therefore, show the Home Secretary that they knew their rights and were determined to maintain them. The underground viewer was the man contemplated by Parliament to receive a certificate as manager, and it was most discreditable to the Home Secretary to tell that he was sorry that their applications for certificates could not be granted. What they had to do was to stand together so as to obtain what Parliament had guaranteed to them.

Mr. S. STEERS said he had been a manager for 27 years at some very large collieries, 15 at Strafford Main, near Barnsley, yet he had been refused a certificate. Whether it was because he was old and ought to be relieved of his onerous duties he could not say.

Mr. MUSGREAVE remarked that it appeared to be that the Government Inspector did not wish the present body of managers to continue in the position they had so long and satisfactorily held.

Mr. KEIGHTLEY stated that he knew one manager who for many years had 1000 men under him, and whose certificate had been refused.

Mr. NORMANSELL said, as one who had assisted in obtaining the Act, he was sure that Parliament intended those to be the certificated managers who were at the collieries every day, gave orders to their deputies, and saw them carried out. Daily supervision meant looking to the state of machinery, ventilation, and the state of the workings, and they could not expect a man to come from a colliery in Derbyshire to one in South Yorkshire, and then to West Yorkshire, to manage as the Act required. He knew there were several persons who were put down as managers who were actually mining engineers, or consulting engineers acting for a dozen collieries, yet men who had been managers at collieries for 10 or 20 years had had their certificates refused. Employers should assert boldly that such a man has been my manager—is now—and demand a certificate. Under such circumstances the Home Secretary had no power to refuse a certificate. It was never intended that any of the existing managers should undergo a test in examination, but should be entitled to a certificate of service. He felt confident that inspectors and engineers were attempting to make the certificated managers an aristocratic profession, and entirely in the interests of mining viewers, but which was utterly impossible. All the power, he believed, with regard to certificates rested with the Government Inspectors, for it was on their advice that the Home Secretary acted; but he held that it was wrong in every way to refuse a man what he was entitled to after complying with all the provisions of the Act of Parliament. It had been said that "supervision" meant the examining of reports and looking over maps. That, however, was not the "daily supervision" intended by Parliament, and it would not do for one man to take a dozen collieries, with the salaries attached to them, and leave the entire responsibility to those in whose reports no dependence could be placed. He advised them to go at once to Mr. Bruce, and their efforts would be backed up by the managers in other districts.

Mr. ROBERTSHAW considered that the course pursued by the Home Secretary was most dispiriting with regard to those who by their own efforts had raised themselves from the position of workmen to become managers; but whilst he would train up their youth so as to fit them for managers, the rights of the bottom stewards should not be lost sight of.

Mr. NORMANSELL said the question they had to settle was that with regard to those who were entitled to certificates, and after that they could with great proprietory ascertain what training and education was necessary to fit a young man for becoming a certificated manager. Education, however, should be mixed with practical knowledge.

Mr. LIVESEY said he would retire from all management if his certificate was refused; and if others did so, then they could leave the whole of the work to be done by the mining engineers themselves.

Mr. TAIT, speaking from his own experience, considered there ought to be three classes of certificates, for the mining engineer might be looked upon as the architect of a building, who made the plans and laid them out; the manager was he who saw that the work was carried out, and looked after the men. The law, however, said that the underviewers were entitled to a certificate, and it was their duty to have what the Act of Parliament said they should have.

Mr. CROSSLEY said Parliament had passed an Act for the safety of the miners, and said that the existing managers were entitled to certificates. Those certificates in several instances had been refused, and with the view of settling the matter he should propose that a deputation be appointed to wait upon Mr. Bruce with regard to the refusal of certificates to persons who had for more than a year before the passing of the Act been managers of collieries, and also to obtain from him his interpretation of the 26th and 31st clauses of the Mines Regulation Act.

Mr. KEIGHTLEY seconded the resolution, which was put by the CHAIRMAN, and unanimously agreed to.

A vote of thanks to the Chairman brought the proceedings to a close.

COAL FIELDS OF CHINA.—In the House of Commons on Monday, Mr. AKROYD asked the Under-Secretary of State for Foreign Affairs if his attention had been called to the statement from competent authorities that the coal fields of China cover an area of upwards of 400,000 square miles, as contrasted with the comparatively small area of 12,000 square miles in Great Britain; if his attention had been called to the report of Baron Von Richthofen, printed at Shanghai in 1870 and 1871, respecting certain coal bearing provinces, notably that of Shansi, containing some 30,000 square miles, with beds varying from 12 feet to 30 feet in thickness; while the system of coal-bearing strata in this province is about 500 ft. in thickness, containing besides an inexhaustible supply of iron ore (the whole report being amply set forth in the *Quarterly Review* for April, 1872); and whether Her Majesty's Government, by concerted action and in co-operation with the Powers who were parties to the Treaty of Tien-tsin, would endeavour to negociate a supplementary treaty to provide for the safe investment of British and European capital in mining enterprise, and in connecting lines of railway under proper safe-guards protected by the contracting powers.—Lord ENFIELD: Baron Richthofen's reports on the provinces of Hunan, Hupeli, Henan, and Shansi, were sent home by the Consul of Shanghai in September, 1870. There is no reason to doubt the correctness of the Baron's estimates of the amount of coal existing in these provinces, and they are confirmed by the reports of our own Consuls. The Consul at Hankow, in his report in 1871, says that most of the steamers on the Yangtze take in coal at that port, the quality of which has lately much improved; it comes from Hunan, where a coal field more than 30,000 square miles in extent exists. The Consular report from Kinhiang for 1871, speaking of the coal districts in the neighbourhood of that port, says:—"The facilities for working mines remain in a rudimentary shape, although this province contains coal in enormous quantities; the coal pits of Yukang are said to be capable of producing a superior description of coal in practically inexhaustible quantities." An officer of the Consulate at New-cheang visited the coal fields in the North of China in 1871, and found that coal, equal in quality to the best Cardiff, existed there in great quantities, though it is only worked on a small scale, and sold at prices varying from 1*l.* 11*s.* 6*d.* to 2*l.* 9*s.* 6*d.* a ton. With regard to the question of obtaining from the Chinese Government permission to work mines and make railways, Sir R. Alcock, during his negociations for the revision of the treaty in 1869, repeatedly urged these points upon them, but unfortunately without success; it is to be hoped that sooner or later the Chinese will realise the advantage which they would derive from the development by foreign capital of the mineral wealth of their country.

INSPECTORS OF MINES.—In the House of Commons, on Tuesday, Mr. Liddell asked whether it was true that the Government proposed to appoint, or had appointed, a certain number of assistant Inspectors of Mines, and what was the nature of the duties they would have to perform. Mr. Bruce said he was aware of the opinion which his hon. friend held on the subject, and could assure him that the persons appointed would in all respects be similar to those hitherto appointed, except that they would be younger men. The same committee on whose report many improvements in mines were brought under the consideration of the House had recommended that there should be an increase in the number of Inspectors, and the Government had considered how that could be done most effectually and economically. They were of opinion that the best course to take would be to give each Inspector an assistant, having the same sort of qualification as himself, but younger and more active. That was being done, and the examination to which those assistant Inspectors would be subjected would be precisely the same as that which had hitherto been applied to the Inspectors. They would be persons, in short, who, in the event of their distinguishing themselves by their ability and energy, would be fully qualified in their turn to become Inspectors of Mines.

ELEMENTARY GEOLOGY.

The facility with which a sound knowledge of a science may be obtained, and the interest attaching to the study of it, is almost entirely dependent upon the character of the books whence the earlier introduction to the subject is derived, and among the most interesting and instructive volumes issued the "School Manual of Geology," by the late Prof. J. BEETE JUKES is certainly entitled to the prominent place which has ever been assigned to it. To keep the work well up to the knowledge of the day a second edition* has just been completed by his nephew, with the assistance of the Rev. T. G. BONNEY, Fellow of St. John's, Cambridge, and the additions and emendations have even increased the value of the book. It is remarked that in preparing the new edition regard has been had to the great advance of geology and its associate sciences since the first appearance of the mannal, and that it has been found necessary to re-write some parts and to re-adjust several of the chapters. Mr. Jukes Browne's endeavour has been to preserve as far as practicable, the style and method of treatment pursued by the author, and to carry out as completely as he could his object in writing the work. The explanation of acids and bases contained in the first edition has been wisely preserved as more easily explaining facts than more recent theories, and the classification of rocks has likewise been retained, partly because it is so kept in the third edition of the larger manual to which the school edition forms a kind of introduction, and partly because he thinks it is easier to comprehend than any more elaborate arrangement.

The general character of the School Manual of Geology is already well known to the readers of the *Mining Journal*: it directs the student's attention to geological operations at present going on around him, and which he can consequently examine for himself, and then explain the changes which these actions would in time bring about, accounting for the geological features elsewhere observed. With regard to the earth as a whole, it is remarked that we can hardly avoid arriving at the conclusion that the interior of the earth is intensely hot. If we were to suppose that the increase of temperature went on at the same rate indefinitely into the interior as that which regulates it in our mines and wells, or even if we allowed that it increased at a slower rate, say for instance, 1° Fahr. for every 100 feet of descent, we should arrive very shortly at an intense temperature: at 50 miles we should have a temperature sufficient to melt steel, and at 100 miles we should get a temperature equal to more than 5000 Fahr., which is a heat greater than any we know at the surface. It is not by any means necessary, however, to suppose that the temperature does increase indefinitely into the interior, or that the rate which regulates its increase near the surface continues to be the same for such depths as those just mentioned. Neither does it follow that the materials, whatever they may be, which exist at great depths would be melted by the same heat that would fuse them at the surface since the enormous amount of pressure which they must experience may keep them solid in spite of the heat.

After chapters on volcanoes and earthquakes, there is an interesting one on rise and fall of ground, the conclusion arrived at concerning which is that the crust of the earth is in frequent, if not in constant, movement in some part or other; large parts remaining stationary for long periods, while others are being elevated, and others again depressed. We know that the sea, with its present level, has once flowed over the spots now occupied by our loftiest mountains. On the other hand, there is nothing improbable in the belief that land once existed where now the deepest parts of ocean are to be found. Mr. Darwin observes of the earthquake which he felt at Valdivia in 1835:—"It was something like the movement of a vessel in a little cross-ripple, or still more like that felt by a person skating over thin ice which bends under the weight of his body. A bad earthquake at once destroys the oldest associations; the world, the very emblem of all that is solid, has moved beneath our feet like a crust over a fluid." The geologist, as he pursues his studies, learns to generalise this feeling and to apply it to the whole crust of the earth during all geological time. He finds that it always has been as it now is, utterly unstable, rising here and falling there, with long slow undulations ever shifting under the liquid ocean, and moving it from place to place as parts of its old bed are lifted up above its surface, and new hollows formed by the sinking of other shores. An outline of chemical nomenclature is given to prepare the way for accounts and descriptions of minerals and igneous rocks, rocks formed of animals and plants, and mechanically formed rocks. The following chapter, which is a summary of the preceding ones, concludes the first part.

The second part of the book explains the principal facts observable on the crust of the earth, the structure of rock beds, inclined beds, bent or broken beds, denudation, unconformability, metamorphic or altered rocks, concretions and veins, and fossils, and their mode of occurrence; and the third part embraces the history of the formation of the earth's crust, deduced from the facts observable in it as interpreted by the processes now in operation. After tracing the various geological changes which have marked the several periods, it is remarked that the geological history of the earth thus closes with the appearance of man exterminating races of animals, just as preceding races have been exterminated by other animals than man. If this history were to be made complete, it should include an account of the aqueous rocks that were deposited, the igneous rocks that were intruded or ejected, the preceding aqueous rocks that were altered or destroyed, the animals and plants that made their appearance and those that disappeared during each period of the history, and for every large division of the globe. Geologists were, before the appearance of Sir C. Lyell's "Principles," mostly led away for want of sufficient knowledge into mere speculations as to what might have produced the earth's crust, instead of patiently studying the actions which were now operating in that production. Hence arose such notions as that granite was necessarily the most ancient of all rocks, and that after the formation of granite came that of gneiss, and so on. It is true it is remarked that the spread of a cold climate seems to have been very general over the world during part of the pleistocene period (though probably the glacial epochs in the northern and southern hemispheres may not have been synchronous) and to have formed a marked expression to the meteorological conditions that had previously prevailed. During former periods the climate of the whole earth seems to have been more genial and more equable than it is now. The change, however, seems to have been a gradual one, both in its incoming and in its outgoing, and a mere extension to lower latitude of the climate which remains now in the polar regions of the earth. However it may have been caused we do not find here or elsewhere in the history of the earth any evidence of an abrupt termination of one order of things, and a sudden introduction of another. Few, and scanty, and broken as are our records of the past, they contain far more evidence of the slow and gradual and continuous action of the natural forces than of rapid or capricious or intermittent change. The present day is linked indissolubly with all past time, and that which we see around us is the result of that which has been before.

Whether considered as a separate text book, or as an introduction to the larger manual, this volume is worthy of high commendation. It contains an abundance of information of a thoroughly reliable character, and although the outline necessarily leaves many details to fill in, the student will have nothing to unlearn and will learn nothing that is useless to him.

* The "School Manual of Geology," by J. BEETE JUKES, M.A., F.R.S. Second edition, revised and enlarged. Edited by Alfred J. Jukes-Browne, of St. John's College, Cambridge. Edinburgh: Adam and Charles Black.

JOURNAL OF THE IRON AND STEEL INSTITUTE.—The December part has just been issued, and makes a very excellent completion to the second annual volume, since it contains a reprint of Dud Dudley's *Metallum Martis*; an illustrated description of Wrightson's Patent Hydraulic Apparatus for Lowering Charges into Blast Furnaces: an elaborate paper "On the Gases evolved from Pig-Iron, Steel, and Wrought-Iron, and Coke on Heating in Vacuo, and on the Estimation of Carbon in the same," by Mr. John Parry, of the Ebbw Vale Ironworks, Newport; and another "On the Reduction of pure Sesquioxide of Iron with pure Carbon in Vacuo," by the same writer. The Quarterly Report on the Progress of the Iron and Steel Industries of Foreign Countries, by Mr. David Forbes, F.R.S., foreign secretary to the Institute, is of the usual complete and interesting character. The first part, devoted to metallurgical topography, embraces references to Africa, Australia, Austria, Belgium, Canada, France, Germany, India, New Zealand, Nova Scotia, Russia, Spain, Sweden, Tasmania, Turkey, and the United States. In connection with metallurgical technology, it may be mentioned that he gives a description of Casartelli's pyrometer, the American process of smelting iron by petroleum, and an extract from a German source showing the proportion of manganese in various kinds of steel. Mr. Ernest Bell makes a very valuable contribution to the volume in the shape of an excellent translation of Dr. Wedding's "Memoir on the Working of Blast Furnaces with Raw Coal at Gleiwitz, in Upper Silesia." The Wedding furnace was blown in in 1835. There are also the report of the Belgian Commission on Danks's Furnace; on the Possil Iron Ore and its Associates in Southern Pennsylvania, by Professor Silliman: and Notes on British Processes and Statistics: so that the volume will be altogether very complete.

NEW POPULAR SONG.—"My Beautiful, Good Night," is the title of a new song, by a young composer of promise—Mr. Arthur Jackman. The song is likely to become popular for two reasons—the music is bright and pleasing, and it will be sung by the great tenor, Mr. Sims Reeves, on March 5, at the London Ballad Concert, St. James's Hall. The words are by Mr. S. H. Bradbury, formerly well known as "Quallon."

LONDON GENERAL OMNIBUS COMPANY.—Traffic returns for the week ending Feb. 16, 8327*l.* 18*s.* 5*d.*

Meetings of Mining Companies.

ENGLISH AND AUSTRALIAN COPPER COMPANY.

The general meeting of shareholders will be held on February 27.

The report of the directors states that the gross quantity of ore, regulus, precipitate and rough copper received from various mines, July 1, 1871, to June 30, 1872, has been 6564 tons, against 5441 tons in 1870; ore, regulus, and precipitate smelted at the Port Adelaide Smelting Works 5438 tons, against 5261 tons. Copper made at the Port Adelaide Smelting Works 1535 tons, against 1518 tons, and copper shipped from South Australia 1533 tons, against 1518 tons. The supplies of ore show an increase over those of the previous year.

BURRA BURRA MINE.—This mine, with which the interests of this company have been so long and so intimately connected, has resumed its operations. All the ore raised has been sent to the the company's smelting works; and the directors of the South Australian Mining Association, in their last report, state their expectation that the returns of ore will be considerably augmented by the extended operations contemplated, and the improved methods adopted for dressing the ore.

THE NEWCASTLE SMELTING WORKS, situated at the New Lambton Coal Mines, Newcastle, New South Wales, were opened on June 11, 1872. Large supplies of ores for these works may be looked for, both in the colony of New South Wales, and the colony of Queensland, besides the shipments of ore from South Australia. At date of last advices 152 tons of oopper, smelted at these works, and which had been carefully tested, and pronounced to be of the finest quality, had been shipped.

In the last annual report the directors proposed to issued 25,000*l.* in debentures, in accordance with a special resolution of the shareholders, bearing interest at 8 per cent., with a sinking fund, so as to extinguish the same in a given number of years. This has been rendered unnecessary for the present by the completion of a mortgage in the colony on the wharf property for 18,000*l.*, at 7 per cent. interest, with a sinking fund for its extinction in 14 years. At the date of the last general meeting February Burra copper was quoted at 97*l.* 10*s.* After a short depression, the price rose to 100*l.* at the end of March, and continued rising until it reached its highest point, 112*l.*, at the beginning of June. A fall of 5*l.* then took place, followed by a further fall of 10*l.* in August, and of 8*l.* in October, making a total fall of 23*l.* from its highest price. A recovery took place in December, and the present quotation for Burra Burra copper is 93*l.* and 94*l.* These fluctuations could not occur without affecting materially the profit on the year's operations. The high prices ruling during the first six months met a good stock of copper made from ore purchased at low prices. The fall during the second six months has met copper made from ore purchased at high prices. The result of the second six months may still, however, be improved should there be a rise in the price of copper, as the stock in hand on June 30 was nearly 436 tons. The balance at credit of the reserve fund on June 30—viz., 6848*l.* 2*s.* 1*d.*—has since been augmented by 875*l.*, being 10 per cent. on the dividend paid on Sept. 1, and by the half-year's interest to Dec. 31, 193*l.* 1*s.* 6*d.*; which, with the proposed addition of 875*l.*, being 10 per cent. on the dividend to be declared, will amount to 8791*l.* 3*s.* 7*d.*, secured by copper warrants. The profit and loss account for the year, July 1 to June 30, 1872, shows a balance at the credit of 18,375*l.* 13*s.* 8*d.*; to which has to be added the balance at credit of profit and loss on July 1, 1871, 6073*l.* 2*s.* 2*d.*; making together the sum of 24,448*l.* 15*s.* 10*d.* From this amount the 21st dividend of 2*s.* 6*d.* per share has been paid, together with 10 per cent. added to the reserve fund, leaving a balance of 14,286*l.* 5*s.* 10*d.*, out of which the directors propose to pay a further dividend of 2*s.* 6*d.* per share, which, with the addition to the reserve fund, will leave 4761*l.* 5*s.* 10*d.* to be carried forward. This, with the interim dividend paid in September, makes a total dividend for the year of 10 per cent. on the paid-up capital, besides an addition of 1750*l.* to the reserve fund.

GOBBETT TIN MINING COMPANY.

A general meeting of shareholders was held at the offices, Bond-court House, on Monday,—Mr. G. WELLS OWEN in the chair.

Mr. R. R. GRANT (the secretary) read the notice convening the meeting, and submitted the accounts and balance-sheet.

The CHAIRMAN said the report just submitted showed what had been done since the last meeting; and the last letter received from the manager, dated Feb. 12, states that—"We are getting on with the adit, and I think the leavings left by the last workers there are equal in value to the burrows on surface, which is far superior to what I expected, and as soon as the snow abates I shall keep the stamps going day and night, and probably shall be able to pay most of the monthly cost." He (the Chairman) added that few progressive mines were in such an encouraging position as to be able to liquidate their current cost by the returns from the leavings of the old workers. The tin from the burrows was worth 10*l.* per ton more than the market price, in consequence of its freedom from arsenic—a fact of itself highly satisfactory; and some average specimens of tinstuff taken from the 10 fm. level had been assayed by Messrs. Johnson and Matthey, and was found to contain 12½ per cent.; and it was stated that if the spar had been knocked off the produce would be equal to 35 per cent. Other samples had been assayed by Mr. Vallantine, of the Government School of Mines, who describes the tin to be of the finest quality. He mentioned that the same result was obtained by both the dry and wet process. They had reason to congratulate themselves upon the possession of a magnificent property—all that was wanted being more capital to develope it. Arrangements had been made with a firm of brokers to place some shares, and they had sent out 18,000 prospectuses at their own expense, receiving only the usual commission; but, at the same time, if the present shareholders would increase their holding, or advise their friends to take a few shares, it could not fail to be of advantage to the company, and he fully believed also to the individual interest to those who took the shares. He then moved that the report and balance-sheet be received and adopted.—Mr. MUDDELLE seconded the proposition.

In reply to a question, the CHAIRMAN stated that 5000 fully paid up shares had been issued, in part payment to the vendor, and to the public about 2000 preference-shares, and, with a very small exception, all the money had been employed in the development of the property. Mr. Condy had in the most liberal way allowed the debt of 2000*l.* due to him to stand over till more capital had been subscribed. Including all expenses of advertising, &c., the preliminary expenses had not exceeded 500*l.*

The motion adopting the report and balance-sheet was put and carried.

The CHAIRMAN said that the last meeting was in August, but the directors had thought it preferable to make up the accounts to Dec. 31, so that in future they can be brought up to the end of each half-year. At the last meeting the directors retired, and were re-elected—so that in the usual course there would be no election till next meeting; but, for the reason above stated, they proposed the board should retire upon the present occasion, and offer themselves for re-election, with the exception of Mr. Fuller, who wished to retire in favour of a friend. All the directors held 100 preference shares, independently of ordinary shares; the future qualification would be 100 preference shares.

Mr. SLOCOMBE had much pleasure in proposing the re-election of the directors. They could not do better than leave the affairs of the company in such hands, and he was perfectly satisfied they were entitled to the full confidence of the shareholders.—Mr. B. M. SMITH having seconded the proposition, it was put and carried unanimously.

Upon the proposition of Mr. GRANT, seconded by Mr. MUDDELLE, it was unanimously resolved to elect Mr. Slocomb to a seat at the board.

Mr. W. Liddell was appointed auditor.

A vote of thanks to the Chairman and directors terminated the proceedings.

EAST NANT-Y-MWYN LEAD MINING COMPANY.

The second ordinary general meeting of shareholders was held at the offices of the company, Nicholas-street, Bristol, on Feb. 13, MAJOR CASTLE, J.P. (Chairman of the board of directors) in the chair.

The SECRETARY (Mr. G. H. Bowyer) having read the notice convening the meeting, and the minutes of the last having been confirmed, the following report of the directors was presented:—

"Your directors have pleasure to report that the company was duly registered on May 25, 1872, but possession of the mine was not taken till the month of June. The directors visited the mine immediately after its inauguration, and gave orders for the necessary machinery, which will be seen from the manager's report has all been delivered on the mine. The company has had much to contend with in the unprecedented continuance of wet weather and the scarcity of labour. The report from the manager is annexed, from which it will be seen that the work at the mine is progressing satisfactorily, and it is hoped that by the next general meeting the directors will be enabled to report further progress in the company's operations.

The SECRETARY next read the report of the manager, which was as follows:—

Feb. 11.—You are aware that I told you in my last that a shaft was sunk on the mine 26 fathoms deep, and in good condition, and that it was intended to sink it 20 fms. deeper, and then drive a cross-cut south to cut the Comet lode; but when this shaft was cleared out and examined at the bottom we found that it had passed through a large blue flookan or clay, and that the ground was very heavy for timber. Upon enquiries of men who happened to work in the mine the last time it was worked, it was ascertained that if that shaft was sunk further it would come down upon old workings, and thus result in an expensive and very troublesome job to encounter. Assuming this information to be true it was decided that as the great object was to ascertain the character of the Comet at about 50 fms. deep, by sinking this shaft 24 fms. deeper, and by cross-cutting about 60 fathoms, that if a shaft was sunk 60 fms. further south towards the Comet lode at surface there would be a chance to have a firm, strong, good shaft, which would stand without timber the distance to the lode at the 50 fm. level being about the same, although it would be further to sink, but less to drive, and with not much consumption of time, giving when the new shaft was completed a good and better position for working the Comet lode than the old shaft. Therefore, about two months since this new shaft was commenced, and has been sunk about 7 fms. in a straight line in a southerly direction from the old shaft, so that the water-wheel can be brought to bear equally as well on the new as on the old shaft; in fact, it will be so fixed that an engine can command either one or both of these shafts by a little more length of rods. The works are not so far advanced as I should like to have seen, or as was expected, in consequence of the unusually wet weather, which not only caused trouble and extra expense in all directions, as the work has been all at or near the surface, also for some time great delay occurred in getting up materials and machinery on the ground; in fact, for a long time the wet weather made the roads impassable. No one would undertake to the hauling at any price, but I am glad to say that since the hard frost has set in all the pumps and rods and wheel have been got up on the mine. The wheel-pit, although built in very unfavourable weather, has been tried by the frost and snow, yet it is standing admirably, and I think it will stand all that will be required. The wheel will not be required for our new shaft for some time, and its erection will be deferred till finer weather and longer days. The counting-house, of wood and iron, spoken of in my last, has for some time been erected, and the agent on the mine living in it. We have had two men for some short time clearing out and making preparations for driving an adit level west on the Comet lode, to prove its size and character, and in doing so they have taken out some small pieces of lead ore, which clearly shows that the mine is in a lead-bearing district, samples of which I produce.—R. TREVITHICK.

The samples of lead ore produced were inspected by the shareholders, and appeared to give great satisfaction. The audited accounts were taken as read, it being intimated they would be printed in a few days, and a copy sent to each shareholder.

The CHAIRMAN said it was his duty to propose that the report and accounts be received and adopted. He could only repeat the regret expressed by their manager, Mr. Trevithick, that the directors had nothing more favourable to tell the shareholders. At present they had not cut the Comet lode, but they hoped to do so as soon as the new shaft was completed. That was quite as much as he could say to them. He should only be repeating the oft-told tale if he were to tell them of the bad weather in the autumn and through the winter; but if they had better weather there was every probability that they would soon cut in the direction of the Comet lode. He thought that all Mr. Trevithick could have done under the circumstances had been done. (Hear, hear.)——Mr. C. GOOD seconded the motion for the adoption of the report and accounts.

In response to an invitation from the CHAIRMAN, who said that Mr. Trevithick would be glad to reply to any questions,—Mr. C. F. HARE asked when it was likely they would get at some ore?——Mr. TREVITHICK: I cannot tell you. I do not know how long it will take to sink the shaft and drive the level.——Mr. HARE: Within a month?——Mr. TREVITHICK: Oh, no. We have got to sink to 60 fms., and that will take some time. It will depend entirely on whether the ground is hard or soft.——Mr. HARE: The Comet lode is the big lode of the lot?——Mr. TREVITHICK: Yes; the best lode of all. We have other lodes south, 3 or 4ft. wide, but I do not know what they will make. Mr. Powell, who is working the adjoining mine, cut a lode a few days since, but as the frost set in he had to stop operations.

No other questions being asked, the resolution was put to the meeting and adopted unanimously, and the proceedings terminated.

SOUTH CROFTY MINING COMPANY.

The usual three-monthly meeting of adventurers was held on Tuesday, when the purser, Mr. E. H. RODD, presided. The attendance of shareholders was very large. The balance-sheet showed a profit on the working of 132*l.* 14*s.* 2*d.* The balance against the mine at the last meeting was 3040*l.* 3*s.* 3*d.*, towards which 1634*l.* 13*s.* 3*d.* had been raised by a call, and that added to the present profit leaves a balance against the mine now of 1501*l.* 19*s.* 1*d.*

Capt. JOSIAH THOMAS read the following report of the agents:—

Bickford's shaft is being sunk below the 180. The lode is unproductive. We shall continue the sinking of this shaft without interruption to the junction of Pryce's lode to the south lode. The 180 cross-cut is being driven south towards the south lode, which we expect to intersect in about 4 fms. driving. The winze under the 150, on the south lode, is sunk 7 fms., and is worth for 9 ft. long 20*l.* per fathom. The 140, west of cross-cut, is worth for the part driving on 35*l.* per fathom; but more lode is standing both to the north and south of the level. The 100 fathom level, east of cross cut, on the south lode, is worth 30*l.* per fathom. The 140 fathom level, east of Palmer's shaft, on the north lode, is worth 25*l.* per fathom. In the 180 cross-cut, north of Palmer's shaft, we have intersected two branches underlying south, both containing tin, which induces us to believe that there is a lode further north, and probably at no great distance. During the past quarter we have been extending the dressing floors, and intend as soon as possible to erect two additional axles to the steam-stamps, one of which we already have on the mine. We have a large quantity of tinstuff underground laid open for stoping economically, and have more than sufficient at the surface (already paid for) to pay off the balance standing on the books against the adventurers. We are not at present working any tin ground, excepting such as contains copper."

The CHAIRMAN read the pursers' and managers' report, which was as follows:—"We have had, with our neighbours, the disadvantage of contending against high prices of labour, materials, and especially coal, which has greatly interfered with a favourable statement of figures. The greater portion of our extra expenditure in machinery has reference to the stamp department of the mine, and the operations in preparing the floors for dressing and returning the tin. The future cost of the mine will be considerably reduced, and a larger return of tin may be fairly calculated upon. The present stamps with 44 heads are only sufficient to stamp the tin which is at present raised with the copper. There is not a single tin stope working for tin only. To meet this it is intended to attach two more axles on the other side of the stamps, which I find can be done at a small cost, the engine, machinery, &c., being already built and paid for. When this is done we may expect larger returns."

Capt. JOSIAH THOMAS said the returns had been 2400*l.* more this quarter than they were last, and the costs about 600*l.* less. He had no hesitation in saying that their returns next quarter would be greater than they were this, and the time after that greater still.——The CHAIRMAN: By a rough calculation, when do you expect to be able to get the additional two axles fixed and the stamps at work?——Capt. J. THOMAS: By next month.

Capt. T. ANGOVE said that there was a rumour abroad that the tin sold from South Crofty did not realise so much as that sold from other mines in the neighbourhood. He asked whether that was so?——Capt. J. THOMAS replied that the average price of tin was less than that paid to that mine. They were paid 75*l.* a ton for their tin at the last sale, but there was wolfram in it.——Mr. T. T. WHEAR asked whether their regular tin lodes would contain as much wolfram as was found in the tin in the other parts of the mine?——Capt. J. THOMAS replied that he did not think they would.

In reply to Capt. T. Angove, Capt. J. THOMAS stated he did not think there was any other mine in the county in as good a financial position as theirs, as all their extra costs were charged up.

The question of the high rate of dues paid to the lords having cropped up—1-15th being paid for copper, and 1-18th for tin—the CHAIRMAN stated that he had met with such a refusal from the lords when last he applied for a reduction of the dues that he considered it useless again to apply.——Mr. J. O. MAYNE, of Truro, thought they should again apply to the lords, as the price of shares had greatly decreased from what they were when the lords refused. He was in favour of still urging the question.——The CHAIRMAN remarked that they only wanted the lords to place them in the same position with regard to dues as the best mines in the district, because they were paying heavier dues than the best dividend mine in the neighbourhood.——Capt. T. ANGOVE was in favour of applying to each lord separately. They had a liberal landlord, and he thought that if he were applied to, and the facts of the case fairly represented to him, that he would reduce the rate of the dues. The CHAIRMAN: At the same time we run a risk of receiving an intimation from him that he considered these perpetual applications, after he had given a decided answer, uncalled for.——Mr. J. HOLMAN recommended agitating for the reduction until they got it.——This also seemed to be the opinion of the meeting, and the Chairman was instructed to again apply for the reduction.

Capt. T. ANGOVE then proposed, and Mr. J. HOLMAN seconded, the passing of the accounts and the adoption of the reports, combining with it also a motion that the balance against the adventurers should be carried forward to the next account. This was agreed to.

The CHAIRMAN said they had had considerable trouble in the dressing of their tin; but he was happy to inform them that they had secured the services of their worthy friend Capt. Richard Pearce, of Dolcoath Mine, and he had commenced the superintendence of the tin department. Many difficulties which had existed were now at an end, and he would, therefore, ask them to recognise Capt. Pearce as an established agent of that mine at a salary of 2*l.* 2*s.* a week. He moved this, Capt. T. ANGOVE seconded, and it was carried unanimously.

DOLCOATH MINING COMPANY.

The last of the two-monthly meetings of the adventurers in Dolcoath was held on Monday, at the mine, when Mr. W. SHILSON presided. There was a very large attendance, doubtless in a great measure due to the late accident in the adit, which resulted in the flooding of the bottom portion of the mine. The balance-sheet showed a profit on the two months' working of 2693*l.* 2*s.* 11*d.* A dividend of 4296*l.* (1*l.* per share) was declared and 141*l.* 9*s.* 1*d.* carried forward to next account.

The agents' report was read by the CHAIRMAN, as follows:—

The 314 fm. level is driven 8 ft. east of engine-shaft. The lode in the end is worth 40*l.* per fathom. We have met with a good lode in this end much sooner than we expected, as we had to drive 16 fms. at the 302 before we met with a productive lode. The winze under the 302, east of engine-shaft, is worth for 9 ft. long 150*l.* per fathom. The 302, east of new east, is worth 20*l.* per fathom, with more lode standing by the side of the level. The 302, west of engine-shaft, is worth 20*l.* per fathom. This end is 4 fms. short of old sump-shaft, which is sunk 11 fms. under the 290, where the lode is producing a little tin. The 290, east of new east, is worth 15*l.* per fathom. The winze below this level is worth for 9 ft. long 30*l.* per fathom. The 290, west of old sump, is worth 80*l.* per fathom. The winze under the 278 just before this end is sunk 7 fms., and is worth for 9 ft. long 100*l.* per fathom. The 278, east of new east, is producing a little tin. The 278, west of old sump, is worth 10*l.* per fathom. The winze under the 266 is worth for 9 ft. long 25*l.* per fathom. At the 266, west of old sump, we are driving south on the cross-course, to intersect the main part of the lode. The 248, east and west of Harriet's, are both producing a little tin. Wheal Bryant shaft, under the 236, is worth for 9 ft. long 40*l.* per fm. The 236, west of Harriet's, is worth 40*l.* per fathom. The winze under the 224 is worth for 9 ft. long 40*l.* per fathom. The 224, west of Harriet's, is worth 50*l.* per fathom. The 212, west of Harriet's, is worth 15*l.* per fathom. The 238, east of Stray Park, is worth 12*l.* per fathom. The 215, east of Stray Park, is worth 15*l.* per fm. We are making very good progress in draining the water, which is now down to the 278, and with the present rate of forking we hope to get to the bottom of the mine in less than a month from this date.

The CHAIRMAN said they were all aware that since they last met there had been an accident, caused by the breaking in of the adit, the consequence of which was that a portion of the mine had been flooded. He was sorry also to say that that portion contained some of the best tin ground in the mine, and the committee had been informed that the production of tin was probably from 15 tons to 20 tons less than it would otherwise have been. Notwithstanding that, however, and the four weeks' extra cost, they had a dividend of 1*l.*, and he was told that had it not been for the charging up of the four weeks' extra cost the dividend would have been 10*s.* greater. The committee thought it right to state that they had unanimously come to the conclusion that it was desirable to charge up all costs, and not to pay a larger dividend than 1*l.* that day. (Hear, hear.) With regard to the accident, the committee felt it was due to the shareholders, to themselves, and to the outside public that the facts should be stated for their information, as there had been an impression abroad that the accident was a very serious one to the mine. It was nothing, however, more than a temporary matter. (Applause.) The adit had been repaired, and in about a month or five weeks at the outside, the manager confidently affirmed that the mine would be forked, and the good tin-producing ground again in working order. The real result of the accident had been that the present dividend was 1*l.* instead of 30*s.* per share, and they would probably find that the next dividend would be less than it would otherwise have been; but after that he believed they might safely expect the mine to resume its proper position. (Applause).

Mr. JAMES ANDREW then proposed, and Mr. T. T. WHEAR seconded, the passing of a dividend of 1*l.* per share, the passing of the accounts, and the report, which were agreed to.

Capt. JOSIAH THOMAS said he thought it right also before to issue a circular to the shareholders to inform real state of the accident, and to tell them that the clear, and that it had been secured. The adit where occurred was not their own adit, nor was it one belo mine; but it was one which conveyed the water from Cook's and a part of Carn Brea Mines, and the accident was occasione down of two or three beams in the back of the level, owing very wet season which they had had to contend with, and timber. He was glad to say that they were getting on very forking of the water again. It was most fortunate for the had the new 85-in. engine on the mine, instead of the old 75-in. had in use a few years ago, for if they had had the old one be the consequences would have been, for the accident would have matter. They were forking the water now at the rate of nearly they could go on like that they would get to the bottom of the weeks, or in less than a month, at all events. (Applause.) Of co time their returns of tin would be lessened, from the fact that th was covered with water; but, after all, the matter was not so ser would lead them to believe. On the previous Friday evening he say that they would have no profit at that meeting, and that a they would make a call; but they were not so bad as that. (Ap a few shareholders were in favour of leaving the four weeks' co ing a larger dividend that time, it was thought best to charge t He had taken the opportunity of writing to several of their pri everyone of them were in favour of the course that had been adopt Williams going so far as to say that they had better charge up costs, even if they gave no dividend at all. The past year of 1 exampled prosperity for the shareholders. Upwards of 45,000 made in that time, that being 15,000*l.* more profit than the mine any former year. He remembered—although he was not an old shares were selling at 15*l.* per 1-179th share, or less than 300*l.* for those shareholders who purchased at that time actually received times as much in dividends as their shares originally cost them. future their prospects were very good and hopeful. He hoped t better price for tin in the course of the year, and also that the pro go down, the cost of coals at present being a very serious item, one upwards of 1000*l.* a month. With respect to the new man-engine mittee had decided should be procured, he might say that their p a very small one. It was erected some eighteen years ago, and cient power for the proper working of the mine. The truth of the ought to be working five strokes a minute instead of three, as th of 400 men employed underground. With the present engine throwing away half-an-hour a day for each man, or 200 hours a occasioned in lowering the men. He considered that the total co together with the erection of the engine house, would not be mo 600*l.*—that was after the old one had been sold.

A vote of thanks was passed to the Chairman, and that concluded

—*Western Morning News.*

ALLT-Y-CRIB SILVER-LEAD MINING COM

The first annual general meeting of shareholders Feb. 14, at the office of the company, 22, Great Wi London. There was a good attendance.

Mr. A. CARNEGIE in the chair.

The SECRETARY read the notice convening the mee CHAIRMAN moved that the report and accounts, as received and adopted.

Mr. R. ABBOTT seconded the motion, which was agreed to. The report was then read, as follows:—

I beg to submit to you the following report upon your mine and last a start was made to sink the engine-shaft below the 40 fathom level, and about the middle of October the men had got down 1 by cross cutting to the south not more than a foot, the lode was had been pitched right, but a cross-joint threw it a little north, driving west at this depth (3 fathoms) it was determined to go on 5 fathoms, with tackle, before putting in pumps and skip to bot shaft is now down over 15 fathoms below the adit level, and in a pumps will be in and skip-road complete for hoisting, when me drive both east and west on the lode, and open up ground before I expect 25 fathoms below adit is as deep as it will be practicable with the limited power for pumping and hoisting the present I believe, about 7-horse. The 15 fathoms draught, however, wi hoisting gear are attached, will be a test of its capacity to do the dent from the well-defined, smooth, and regular hanging wall of especially in the last 8 or 9 feet sinking, that the formation below settled than in the levels above, and it is beyond doubt the ground this respect at a greater depth. Independent of this, the lode, carrying ribs of mineral (one 8 in. thick) showing the proper deposit of ore, a carbonate of lime formation, with a strong mixture and blende, the latter of a better quality than before seen in any mine, holds out, not only in the opinion of the mine captain and of the miners, the greatest promise for future development by sin wall having been reached, the width of the lode is not yet known. 2 feet have been taken down, worth for lead nearly 3 tons per fathom or deep adit level: Drivage west 31 fathoms; the ore ground now three gangs, 12 men, extends about 15 fathoms from engine-sh are looking well, and all improve in the rise; they are now yieldi 2 tons lead ore per fathom. The end of level now shows some lea for something better than has been met with in driving the last The caunter has been driven south-west from engine-shaft a little and from its perfect walls and character it will be surprising if it lead to an extensive bunch of ore. It will be desirable shortly to this level near the end of the present stopes, to go down and meet in the 15 fathoms level below adit. The cross-cut in adit should the intersection of the lode, and this level opened up east of engine 30 west a very valuable but short stope has been worked out to the the drivage of the end has been resumed to get underneath the ore west; strong branches of ore are now visible in the forebreast of lode, and it is reasonable to expect there will be here shortly a of backs for stoping.

In the 30 east, for about 10 fms., the extension of this end, although course of a very promising and well-defined lode, has been little work. The indications holding favourable, the drivage for the pres When the underhand stope is worked out from the 20 to this level will be carried down to the adit level, and 15 fms. below adit, to the east. By doing this there is little doubt valuable ore stoping ground up. The 20 west has been extended 40 fms.; the drivage has been July. At present four men are stoping very good ore in the back opened up from a rise at the eastern end of the old stope. In the underhand stope has yielded a large quantity of very rich ore, and tension of it now being worked continues to yield for the length o 3½ fms.—a fair quantity of ore of nearly as good quality as formerly no work of any importance has been carried on, either east or west, At the shallow adit, when skip-road and hoisting gear is comple attle, if possible, will be hoisted and trammed out, and only staff pass through the deep adit. From the favourable indications in the winze, which is as deep as it is advisable to work by tackle, and w miners—the ground for a considerable fathomage stoped away more than probable, if the work now was carried out practically ground already open to grass, and going down with a working equal to that found at the engine-shaft would be discovered here 70 fms. east of engine-shaft, it is a desirable distance for a new shaft ground.—Caunter Adit Levels: The length of stulling in No. 1 extensive deposit of ore has been worked out by the former miners and south lode, and in September four men were started here to also to open up on an east and west lode. They were removed to more productive work—stoping in the mine; and for several were engaged in No. 3 level, breaking very good stones of ore in old stope. The drivage west from engine-shaft will in course of caunter or any north and south lode, and at a depth.

Old Workings: The clearing up of West Chapel level, Lady shaft boundary, and steel-lead ore lode, have been of little practical benefit development of the mine. The cost, however, if not wholly, has been defrayed by the value of the ore found in sight unbroken, a with the old miners' deads. The work of the steel-lead ore lode w consequence of it not being practicable to carry it on longer, except perpendicular shaft to a depth of about 10 fms., erecting a horse-gin, and opening up the ground in a regular and proper way. I fe that I have little faith in following the old men's workings; I be going into virgin ground.

In view of the future development in the engine-shaft pressing captain and myself anticipate, a plan for sinking under the old mine intersection of the deep adit with Allt-y-Crib main lode will be shown to you. I would further suggest that, in my opinion, the best and for the company to make, next to sinking under the old mine, would adit level near the extreme northern boundary of the sett, in the 451 on surface plan, and drive south to engine-shaft. By doing this ore lode would be proved, and might be advantageously opened up point the driving, at a short distance, would be in the hill with new backs. I firmly believe it would not be altogether dead work; it would pay for itself, and, what is more, it would explore almost the entire floors: It is unnecessary for me to allude to the sales of ore already (about 122 tons), further than to say if the yield of orey stuff from been double what it was the machinery and appliances for crushing would have been ample to have disposed of it. The works at present additions or alterations of importance, are adequate, with an abund rock of fair quality, to return for eight months in the year at least a ore per month. During the mid winter months, November to Febr deal must depend upon the weather, and without proper sheds to pro from rain, cold, &c., the days being so short, it is doubtful if this returned, even if there was an unlimited supply of rock for the crush

The new Dingey buddle works the slimes very successfully, and jigger machine, for a long time lying on the floors in no use, has been requisition in place of the old hand jiggers, and does very good should be lost in constructing a new water-wheel, the wood work wheel is perfectly rotten, and I am in constant fear of its breaking repair. As the centres and most of the iron work would do again, the would not exceed 50*l.* Better progress is now being made in dressi the last three or four weeks, and I hope to sample again very shortly

On the proposal of Mr. MERRETT, seconded by Mr. R. ABBOTT, M was re-elected a director of the company.

On the proposal of Mr. A. CARNEGIE, seconded by the Rev. T. J. H Mr. Edward Curteis was re-elected a director of the company.

It was proposed by Mr. FELL, and seconded by Mr. MANSELL, th

…e declared and made payable on the 21st instant, which was …ed to.
…of Mr. CARNEGIE, seconded by Mr. FELL, Mr. G. H. E. Brown …ditor of the company at a remuneration of 10*l*. 10s. per annum.
…s having been passed to the Chairman and directors the proceed-

[For remainder of Meetings see to-day's Journal.]

MINING IN CORNWALL.

…ctically acquainted with tin mining it is well known …t deposits of ore are met with at the point of junction …with the killas. This feature is one well recognised …any of the best mines in Cornwall thus situated having …mous profits in comparison with the capital invested, as …instances abundantly prove:—

	Outlay.	Dividends.
Stenalees	£18,250	£112,050
Clara Vean	30,000	280,600
Dolcoath	46,137	333,835
East Basset	18,944	67,512
Providence	11,568	137,107
St. Ives Consols	10,105	461,070
South Caradon	640	323,840
South Frances	9,293	185,838
Tincroft	54,000	135,300
Treskerby	4,080	419,064
Wheal Basset	10,500	160,200
Wheal Buller	14,444	237,834
Wheal Basset	2,624	323,800

…we see that on a capital of 230,605*l*., dividends amounting to …have been paid. These represent the profits of only a re- …period. The old Wheal Vor Mine yielded nearly half a million …ing in profits, when tin was about half its present value, and …profits of Great Work must have been far beyond this amount, …the outlay was very small, the mine being rich almost up to …surface. So far back as the time of Queen Anne this very wealthy …gave 10,000*l*. annually in customs to the Queen.

…Work Mine is now being worked in the direction of the …Works Mine, and with most profitable results. The value …Tin Works Mine is steadily increasing as they are driven to the latter …lodes is steadily increasing as they are driven to the latter …leading to the well-founded conjecture that the lode in Great …Works will be found even more productive than in its wealthy …labour.

…company, with a capital of 25,000*l*., divided into shares of 1*l*. …with limited liability, has been formed, and is about to be …tered to work the Great Tin Works on an extensive scale; …from the reports of the eminent authorities conversant with the …ct, who have inspected the property, there seems no doubt that …mine will prove very remunerative. The following report from …en of Capt. John Brown, formerly manager of the mine, will …ad with some interest:—

…the mining operations which were carried out on the main lode in …16 years since, which we carried on with very imperfect pumping …energy, which was frequently breaking and causing much hindrance. I ad- …the power to try and get an engine on the main shaft, or most productive …of the main lode, and, thinking the mine ought not to be stopped, I made an …to do so myself, but the shareholders did not accept it, and the mine was …stopped. This sett contains a great number of lodes, but at that time opera- …tions were confined to one only, which has been opened on a good length at the …great level, the lode varying in size from 2 to 8 ft. wide. It was tinny through- …out the better part at the eastern extremity of our operations going towards …Great Work Mine, and about 300 fms. from their western and your eastern …boundary, and also towards the junction of granite and killas, on reaching which …important results. We sunk on the main lode to the depth of about …surface, which is the greatest depth of the mine, to the then-called …fathom level. At the 15 the lode contained very much white iron. At the 25 the …iron was less and more tin, and so at the 35, and at the 45 the lode was nearly …all iron, and the value of the tinstuff at this, the bottom level, was more …than double that of the upper levels, and the tin of much better quality. This …lode commenced at the surface, and had an easterly dip. The tinstuff …from the bottom would yield about 7 cwts. of black tin to the 100 barrows …of 20 cwts. per ton of stuff. The lode was working wide, and the ground …contained little timber. Of the many lodes this sett contains, some of the …best work-able lodes are within a handy distance from the main lode, and can …be reached by virtue of the same engine. This is almost new mining ground, and …I consider it to be the best mining undertaking I know that is not in course of …working worked in a proper manner may prove one of the best and most …profitable in the neighbourhood."

…the exhaustive reports already given upon the property, …have thought it well to instruct Mr. J. F. Richards to …an independent inspection, and report upon their behalf, which …be published in due course.

GORSEDD AND CELYN LEVEL CONSOLIDATED LEAD MINING COMPANY.

…following is a copy of a Special Report made for a large …holder by Capt. Absalom Francis, of Aberystwith:—

…mines are situate about 1¼ mile west of the town of Holywell, in one of …the best lead districts of North Wales; the grant is most extensive, …and many veins of great promise. I will begin by describing the work- …ings of the Wheal Holway Lode,' to which the deep adit level has been driven, and …the Coetia Gelynen whim-shaft 80 yards deep. This shaft was cleared from …adit to it by the present company, and the adit cleared and secured west- …ward for a course 350 yards. The Coetia Eithin shaft has been cleared on this …level 50 to the 100 yard level, that being the depth of the adit at this shaft, …which rises considerably in going westward. About 50 yards to the west …of this shaft and south vein was intersected, on the course of which a level …was extended 150 yards north, for the purpose of intersecting the Gorsedd vein, …and found an immense quantity of lead ore near the surface. In the fore- …breast some good stones of lead were broken, showing that the bearing …of the lode that could be desired; and, as the level is now fast approaching a junc- …tion, no doubt of your finding a good course of lead ore when it has been …driven. About 5 yards from the present forebreast a feeder of water was cut, …which at present was letting out about 200 gallons per minute; and last Saturday …morning had stopped letting out about 500 gallons per minute. I consider that the …water coming from these places is 20° warmer than that flowing through the adit, …which is in my opinion, is a favourable omen to your opening out rich ground. …The course of the Gorsedd runs the Merllyn lode, and in order to prove this a shaft …was sunk by the late Gorsedd Company to a depth of 40 yards, and sunk …deeper by the present company; and from the bottom of this shaft a …level has been extended north for 28 yards towards the Merllyn vein, which is …supposed to be not far from the present forebreast. The Gorsedd and the Merllyn …veins form a junction to the west, and produced very large courses of ore; in …fact, where they diverge from each other, and both these lodes will be tried by …cross-cuts being pushed forward. At East Gorsedd shaft, which is 40 yards …deep, a level has been driven east, and produced 10 tons of lead ore during the past …month. The ground immediately to the west of this shaft has been very …hard. Mr. Jones, knowing the run and the diallings of the works, conjec- …tured there was an error in the level driven by the last company in East Gorsedd, …and, as near as what he thought, his conjectures were found correct, and hence the …discovery. A good deal of lead ore was raised under the adit to the east …of Coetia Gelynen, which, in my opinion, a good small Robey's portable engine …should be fixed and if placed on the Coetia Gelynen shaft: and this I would recom- …mend to be done for the purpose of pumping and drawing until your mines have …been opened, when you will be in a position to erect suitable machinery (if …required) to effectually work the whole of the property. A saving of, I may say, …20*l*. per year will be effected by making use of the water for working …the water-wheels, which is issuing from the mouth of your deep adit. I …have much pleasure in being able to conclude this report by expressing it as my …opinion that they will at no distant date open out great, lasting, and profitable …mines.—ABSALOM FRANCIS.

DENBIGHSHIRE CONSOLIDATED MINES.

…following is a copy of a Special Report made for a large share- …holder by Capt. Absalom Francis, of Aberystwith:—

…visited with Captain Pryor I on Saturday last visited and inspected this …property, situate in a westerly direction, about two miles from the town of Mold, …and bounded north by the once celebrated and very rich mines called the Mold …Mines. To the south is the great Maes-y Safn Mine, which has produced enor- …mous quantities of lead ore, and to the westward is situated the very rich Colo- …mondale. In fact, the situation of the mine is all that can be possibly desired. …The property has been most extensively worked near the surface for nearly three …quarters of a mile from east to west: the last company extended the 112 yard level, …which is the deepest working. This communication has thoroughly ventilated …the mine, and has enabled them to drain all their workings for pumping at the …engine-shaft, where there is now erected a 36-in. high-pressure condensing engine, …which lifts the water at present by working three strokes per minute—say, about …10 per minute, consequently the cost of fuel for supplying it is very little. There …is also a large engine for drawing the stuff, which answers the purpose admi- …rably, and the kibble passed through from surface in a most satisfactory …manner. The arrangements for winding at the 112 were completed when I was …there. The Quaker shaft. The engine-shaft has been sunk about 10 yards under …the 112 yard level. The latter is being driven west from Quaker's shaft by a full pare …of men, and within the last 5 or 6 yards has undergone a great change, the lime- …stone having changed from a dark to a light colour, the lode containing a good quan- …tity of spar and quartz, presenting every indication of the vein, where it was found …to be further west at Parry's shaft, to which attention will be drawn be- …fore concluding this report. The 112 yard level east is also being driven by a full …pare of men in the forebreast, in which there is as fine a lode as can possibly be …seen, and which undoubtedly lay open a rich course of ore in extending it a few yards …in a westerly direction. There is a rise some few yards from this end, …about 14 yards from the roof of the level, which has passed through good …ground for a few yards in rising, and this lead is dipping towards the present fore- …breast, and will not meet it, in my opinion, for some 10 yards to come or more. The …last time I saw it, I considered to be worth 20*l*. per fathom. Under …the 112 yard level there is a winze sinking, the lode being of a very promising …character, and containing good lead ore, but not sufficient to pay as it is now being …worked. I would, therefore, recommend that the engine-shaft be sunk to a depth …of 22 yards below the 112, and when this has been accomplished that level should …be pressed forward in an easterly direction on the course of the main or Coed …Cynric lode, on which vein all the workings alluded to have been carried on. This …suggestion met with the approval of Capt. Pryor. Further west than Quaker's …shaft another (Parry's) shaft was sunk by the old miners, and this has been cleared …to a depth of 36 yards, and is supposed to be 24 yards deeper than the present clear- …ing. At 36 yards a cross-cut was put out south, and intersected the vein in the old …workings, an old sump having been sunk under the level on the course of the lode. …There is no doubt that large quantities of lead ore have been raised from this place. …and it was thought, in order to make a speedy trial of the ground, that a small port- …able engine should be erected for that purpose. I think, however, on mature reflec- …tion, that it would be unwise to do so just now, especially considering the high price …of coal and labour, and the 112 west will prove this ground more effectually than …any other mode of trial that could be adopted. To the south of your main lode is …Coed-y-Fewd vein, which forms a junction to the east of your present forebreast, …and to the north is the vein of Colomendy, also forming a junction eastward with …your main lode.

…At the point of these junctions at the 112 yard level they can be proved cheaply …and effectually by opening on each of them both east and west, and where I have …no doubt great quantities of rich and very profitable ground will be laid open; and …should this be the case there are still two other lodes to the north, which at the …proper time will claim your attention. I have great satisfaction in bearing testi- …mony to the untiring energy displayed by Capt. Pryor in opening out the mines; …and, in conclusion, believe that from present appearances success is placed beyond …a doubt, and that the mine will be in a state of profits in six to nine months at …most. When the rise in the 112 is communicated to the old workings above it, and …which is daily expected, some profitable stopes may be let.—ABSALOM FRANCIS.

COLLEGE OF SCIENCE AND SCHOOL OF MINES FOR EASTERN CANADA.

The importance of encouraging the study of technical science and of promoting the systematic development of the mineral resources of a country in order to secure its commercial and industrial prosperity has now been so thoroughly demonstrated by experience that there should be no hesitation in according the most willing support to every institution which offers instruction of the character indicated, more especially when the curriculum of studies is so arranged as to permit the student to obtain, in addition to the technical knowledge more immediately sought, that superior class of general information which distinguishes men who have had the advantage of a collegiate education. In long-established mining countries like England and Germany, and where every branch of industry is carried on upon the largest scale, the facilities for acquiring a considerable amount of sound scientific experience about the mines or in the factory itself are doubtless great; but in comparatively undeveloped countries, like the British colonies, the case is widely different, and the student is compelled to rely entirely, or almost entirely, upon such practical demonstrations and experiments as can be shown in the lecture rooms of a college of science or school of mines.

Recent alterations in the arrangements with respect to the professional chairs at the UNIVERSITY OF KING'S COLLEGE at Windsor, Nova Scotia, have placed that college in the foremost position in the province as an establishment for the acquisition of technical knowledge, at the same time justly entitling it to be regarded as the College of Science and School of Mines for Eastern Canada. In announcing the inauguration of certain similar institutions elsewhere, we expressed regret that the science students were not given an honourable rank in the universities with which the schools were connected, by the side of their fellow-students who, proposing to devote themselves later in life to other pursuits, found it more necessary to attend the lectures of the professors of theology than those of the professors of the physical sciences; and the governors of Kings College, Windsor, may fairly be congratulated that they have adopted a more liberal principle. They appear to have taken every necessary precaution to attain their professed aim that all students shall have the opportunity of obtaining a good general education, without their attention being so distracted as to prevent their attaining proficiency in any one particular branch of study. This principle was, we believe, first recognised by the University of London, when the conditions upon which the science degrees should be granted were originally framed, and the fact that the holders of Degrees in Science represent the greatest ornaments of the University of London may be accepted as an earnest that the admission, at King's College, Windsor, of science students to the fullest academical honours will prove of equal advantage to the university, and to the province.

That there may be no question as to the general academical knowledge of the alumni of the College; it is wisely provided that every matriculated students shall pass responsions, for which he may offer himself in his fourth term, and he can reckon no term after the sixth until he have passed. The subjects are—One Greek and one Latin book, and Latin writing; one Gospel or the Acts of the Apostles; algebra, to the end of quadratic equations; Euclid, two books; chemical physics; inorganic or organic chemistry; and one modern language, so that there must be a very good general foundation for the technical instruction to rest upon. But responsions being passed, the student is permitted to devote all his energies to the particular subjects which he conceives will be of greatest value to him in after life; and the examinations for degrees are arranged, like the examinations for Degrees in Science at the University of London, with special reference to the studies selected. The College lectures include (in addition to Classics, Logic, Hebrew, Divinity, and Pastoral Theology, which will not much affect students in science who have passed responsions) Chemistry, Natural History, Mathematics, Natural Philosophy, Astronomy, French and German; and as the science chairs are quite as well filled as those of classics and divinity, it would be scarcely possible that the requirements of students could be better cared for. Practical chemistry, geology, and mineralogy are constantly taught, and Professor How's name is so well known, both in Nova Scotia and in Great Britain, from his many valuable contributions to the geological and mineralogical literature of the province, that it is unnecessary to refer to his qualifications, whilst Prof. J. E. Oram, from the University of Galway, Ireland, who occupies the chair of mathematics and natural philosophy, is not a mere professor of the physical sciences and engineering, but one whose professional experience enables him to elucidate his scientific demonstrations by practical instruction in the field—a mode of teaching to which it is impossible to attach too much importance.

Nor could a more favourable position for an establishment wherein to teach technical science than that occupied by King's College, Windsor, be easily found; for the whole of Nova Scotia has abundance of mineral wealth, and extensive deposits of every mineral of commercial value are within easy reach of the college, and the fact of plenty of coal wherewith to smelt the valuable ores of copper, zinc, lead, and other useful metals, which are proved to exist, cannot fail ere long to give the whole province considerable importance as a mining district. The value of a school of mines course is much enhanced when the students are enabled to examine *in situ* mineral deposits similar to those with which they will probably have to deal in the course of their professional experience, and a college of science course which permits the student to obtain as much sound practice as could be had at King's College, Windsor, leaves little to be desired. The effect of the recent alterations has scarcely been apparent during the present session, owing to the improvements in the arrangements connected with the engineering school, and modern languages department not having been made known long enough before the session commenced, but it may be anticipated that in the session 1873-4 the college will acquire new life, and thenceforward be able to refer to men who have received their technical instruction within its walls, and subsequently attained distinction with as much gratification as it can already refer to its lawyers and divines. The encouragement offered in the shape of scholarships, exhibitions, and prizes is sufficient to excite emulation—the Williams prizes being for Mining and the Science of Mineralogy as it bears practically upon mining operations; for Mechanics and Civil Engineering, as they bear on all matters relating to railroads, motive power for them, and all other modern aids to the human hand; and for languages of modern Europe; German, but more especially French, as the almost universal medium of communication in Europe, and, therefore, especially for encouraging the study of physical science, engineering, and similar subjects—and the entire course of study (extending over three or four years according to the course chosen) can be pursued upon the payment of merely nominal fees, remission of which can be very readily obtained; whilst the fact that King's College is the oldest chartered university in Canada, and has been in existence for nearly a century, must impress everyone gaining academical distinctions therein with the feeling that he is receiving honours from a seat of learning with which it is a very high honour to be connected.

FOREIGN MINING AND METALLURGY.

In the Belgian coal trade prices remain firm, as well for coal as for coke, and some new contracts begin to be concluded at current rates, although with some hesitation, in the various basins. The principal pre-occupation at present of colliery proprietors in the Liége basin relates to a probable want of labour, especially in view of the approach of the spring, when it is tolerably certain that brick-making will carry off, as usual, a portion of the present working staffs. In the Couchant de Mons working operations have been somewhat interrupted by great infiltrations of water, by reason of rains and melting snow. Coke is dealt in at 2*l*. 8s. to 2*l*. 16s. per ton, according to whether it is unwashed or not. The Lower Sambre United Collieries Company will pay, on the 1st proximo, 1*l*. per share as statutory interest for 1872; the same company will also pay, on May 1, a dividend of 12s. per share for 1872.

French coal merchants are complaining of a want of animation in the demand for domestic qualities, and they are even consenting to sales at lower rates than those current last month. Colliery proprietors refuse, however, to consent to any reduction, and they are also little disposed to conclude long-termed contracts at present quotations. At Paris good burning qualities stand at 2*l*. to 2*l*. 4s. per ton, delivery included. In the South the state of affairs remains without any material variation. According to a law which has passed a third reading in the National Assembly, boys of from 10 to 13, and girls of from 10 to 14, are not to be worked more than six hours per day, and even this period of six hours is to divided by an interval of repose. Boys are not to be employed in night work until they are 16 years old, and girls are not to be so employed until they are 21 years old. Males only are to be allowed to engage in underground work, and they must be 13 years old at least. It is understood that the Paris, Lyons, and Mediterranean Railway Company has abandoned its proposed tariff for coal intended to be exported to Switzerland and Italy. This course appears to have been taken by the company in consequence of strong representations made to it in the interest of Italian commerce by the director-general of the South Austrian and Upper Italy Railway. The imports of coal into France in 1872 were 6,862,121 tons, of which 4,181,419 tons came from Belgium, 2,217,567 tons from England, 455,166 tons from Germany, and the balance from other sources. The imports of coke into France last year were 504,555 tons. The imports of coal into France last year presented an increase of 1,400,000 tons, while the imports of coke last year also expanded to the extent of 200,000 tons. Belgium sustained the lion's share in these increases. The exports of coal from France in 1872 were 768,760 tons, against 549,875 tons in 1871.

The aspect of affairs in the French iron trade appears to have become more animated. The revival in business is now more decided, and prices display increased firmness. From all sides, indeed, there are reports of an upward tendency in quotations. In the Haute-Marne rates have remained stationary, but they are accepted now without any dispute; charcoal-made pig is dealt in in this district at 7*l*. 12s. per ton, while mixed pig brings 7*l*. to 7*l*. 4s. per ton. In the basin of the Nord trade circulars have advanced the rate for first-class merchants' iron to 14*l*. per ton. At Paris iron wire has experienced a marked advance, No. 20 being dealt in at 25*l*. 12s. per ton. At Lyons coke-made iron brings from 13*l*. 4s. to 13*l*. 12s. per ton, and charcoal-made ditto 14*l*. to 14*l*. 8s. per ton. There is a great deal of activity, it may be observed, in the basins of the South. Measures are being continually taken to increase production. Thus, the Marquise Blast-Furnaces, Foundries, and Forges Company, represented by M. Damart, has applied for two concessions of mines of iron-stone in the department of the Meurthe-et-Moselle. An iron bridge of three spans is about to be thrown over the Seine at Suresne; the estimated cost of the work, for which tenders have just been received, is 24,000*l*. Tenders have been invited without result for the supply of 500 tons of iron for French Guiana. Germany is just now giving out orders tolerably freely, not only to Belgium, but also to France. The upward tendency in prices, however, which just now characterises the French iron trade comes from England.

A rise in prices is anticipated in Belgium, but at present, with the exception of some isolated attempts, it may be said that the upward movement has not taken possession of the markets, and that it has only made its approach felt by an extreme firmness in quotations. Pig is naturally at the head of the upward movement, being very scarce and in considerable demand at 6*l*. 4s. per ton. A quotation even of 6*l*. 4s. per ton is reported, but it lacks confirmation. Casting-pig has exceeded the previous quotation of 7*l*. 4s. per ton, but this appears to be only a temporary movement, and 7*l*. 4s. per ton will probably be the most general price for some time to come. Merchants' iron is easily maintained at 12*l*. 16s. per ton; this quotation is rendered all the more remarkable by the fact that it is at this period of the year that the demand for this description of iron usually gives way. The price of rails is just now rather vague and uncertain in Belgium; an adjudication of some importance would, of course, indicate the real state of the market. The foreign demand is increasing, and will assist in maintaining the good tone of affairs. A meeting has been held at Gilly to promote the formation of an ironfounders' association, intended to promote the general interests of ironfounding industry. Luxembourg minerals are expected to shortly reach the blast-furnaces of the Charleroi basin at lower rates for transport. The administration of the Belgian State Railways proposes to hire temporarily a locomotive and 50 earth wagons; the existing plant of the system would appear to be well utilised. It is proposed to double the lines of the Great Luxembourg Company, which are now about to be transferred to the Belgian Government. Some important renewals will probably also be carried out. It is stated that the Espérance Company, at Liége, has decided on the installation in its works of several sets of differential rolling-mills on the new system of M. Lauth, which has been in operation for a month past at the Ougrée Works, and which has given satisfactory results. The administration of the Belgian State lines is about to give out a contract for rails, and it is stated that the guarantee period required will be considerably reduced.

Business in copper has presented no great activity at Paris; at Havre comparatively little has been done, and at Marseilles the tone of the market has been weak. In Germany the copper markets have been quiet. At Hamburg business has also presented little animation. The Paris tin market has been quiet, and quotations have shown some weakness. The German tin markets have also been feeble at Paris, and Marseilles quotations for lead exhibit little variation. Zinc has been rising in price at Paris; Silesian, delivered at Havre, has brought 26*l*. 8s. per ton. At Marseilles affairs in zinc have presented little animation, and prices remain without variation. A fair amount of business has been passing in zinc in Germany at remunerative rates.

NEW SOUTH WALES TIN.—The prospecting for tin continues with unabated vigour, and the results obtained appear to be highly satisfactory. Within the past 12 months large tracts in the North have been proved to contain tin, some being exceedingly rich, and discoveries are now reported on the Murray, in the South. Some really good prospects of tin with gold have been obtained from both Burra and Boggy Creeks, and surveyors are busy apportioning the claims. Skilled labour is much wanted, but it is said that work will be commenced in earnest in a few weeks, and then a better idea of the quality of the ground will be obtained. Large quantities of tin are being forwarded to Sydney market every week. It is no one's business to collect statistics, so that it is difficult to give the weekly returns from all the mines. But as a sample of what is being done it may be stated that during the week ended Nov. 27, 114 tons 2 cwts. of tin ore were received at Warwick from Stanthorpe, for transmission to market; during the week ended Dec. 12, 54 tons 2 cwts. were forwarded from the same source; and during the week ended Dec. 19 the quantity forwarded was about 88 tons. Between Nov. 29 and Dec. 5 one firm alone sent to Sydney more than 52½ tons of ore from Armidale. At the Baal Gammon Claim, Vegetable Creek, in the Tamworth district, nine men dig out and wash daily from 16 to 20 cwts. of tin; at another claim a single dish has yielded as much as 16 lbs. of clean tin; at another, five men are washing from 23 to 30 cwts. per week; at another 16 men are getting about 12 cwts. a-day. The companies, however, seem less prosperous than individuals, and the prices asked for properties are altogether excessive. A Sydney correspondent writes that the value of the mines has been so largely over-estimated, and the contributing shareholders so much at the mercy of promoters, that a revulsion of feeling has

taken place with regard to them. We see no prospects of 5000 tons of ore per annum being sent from Australia, as has been reported, but there is plenty of tin to pay good profits on legitimate outlay for working capital.

MINING IN AUSTRALASIA—MONTHLY SUMMARY.

Sydney, Dec. 31.—Immense returns continue to be received from the older gold mines, while the newer ones are giving excellent prospects. At Hill-end the stone continues to yield well. They are similarly busy and successful at Gulgong. From Adeling and the Braidwood district capital reports reach us. The receipts from the Western gold fields for the month have been 56,723 ozs., against 29,077 ozs. received from all quarters during the corresponding portion of last year. The yield from the gold fields for the 11 months ending Nov. 30, 1871, was:—Western, 174,884 ozs.; Southern, 62,051 ozs.; Northern, 13,793 ozs. The yield for the corresponding period of this year was—Western, 287,529 ozs.; Southern, 36,437 ozs.; Northern, 9369 ozs. We are in great want of skilled miners.

The *hobbies* of the British tin market do not seem to understand our tin prospects, judging from certain statements in the *Mining Journal*. The wealth of the colony in tin deposits appears to be boundless; shortly you will have a better idea of this fact; the hindrance now only arises from the want of skilled labour. The Queensland tin land being discovered first absorbed all available labour, and our companies cannot get along; notwithstanding, large quantities of tin reach Sydney weekly. We have no statistics, but by way of indicating what is going on I may state that one firm alone sent to Sydney more than 52½ tons of ore from Armadale. The news from London respecting the rise in the price of copper lifted a cloud from the hearts of our copper people, and imparted new spirit to the miners.

The population of Queensland are absorbed in pastoral and mining affairs, and appear to be well content with the reward obtained. A glance at the following figures will show why it is so: 114 tons in the New Zealand Gympie yielded 2090 ozs.; 86 tons in No. 1 North Otago yielded 304 ozs.; and 168 tons of stone from S. Smithfield Gympie yielded 548 ozs. of gold. The Ravenswood escort took 4276 ozs. of gold, the Charters Towers escort 8468 ozs. of gold and 25 ozs. of silver. From Ravenswood during the year 60,000 ozs. have been procured. Another source of wealth turns up in the shape of pearls and pearl shell. No less than 50 or 60 schooners from Sydney and Melbourne are now engaged in the trade. One crew is said to have netted 8000*l.* in six months. The results of the cruise so far are 80 tons of shell and 150 large pearls.

The gold and tin and copper discoveries are too recent to exercise any effect upon the mineral returns of the 10 years. In the matter of coal, however, I may point to a few facts worth notice, for of this product we enjoy a monopoly. I quote Mr. Rolleston's words:—"We are here without a rival, and may calculate with certainty on a production limited only by the demand for ages to come. While gold confounds all the theories of geologists and defies their conclusions, the existence and extent of our coal formations are matters of as much certainty to the experienced eye of the geologist as if they lay on the surface. And now that the miners and their masters seem to have arrived at a better understanding, and to perceive that it is to the interest of both to work in harmony, we may confidently hope that the production may obtain proportions which will place this industry in the first rank among the products of the country. In spite of the many drawbacks which have attended the pursuit, it is satisfactory to notice that while the average produce of the five years 1862 to 1866 was 564,855 tons of coal annually, of an average value of 281,998*l.*, or equal to not far short of 1,500,000*l.* on the whole, the produce of the five years 1867 to 1871, reached a yearly average of 882,272 tons, of the value of 347,957*l.*, or 1,750,000 on the whole. The value of the coal in the first period is estimated at 10*s.* per ton, and in the second period at barely 8*s.* per ton. Had the value remained the same the produce of the latter quinquennial period would have realised 2,205,951*l.*, or nearly 750,000*l.* in excess of the earlier period. The great development of our coal mining industry will be seen in the comparison of the last with the preceding 10 years:—1852 to 1861, 2,053,864 tons, value 1,401,321*l.*; 1862 to 1871, 7,230,553 tons, value 3,149,776*l.*—The copper and kerosene shale industries, although promising great results in the future, have not yet attained a development that swells up to any material extent the resources of the colony. I find that the extent of the production in 1871 was—of copper, 47,275*l.*; and of kerosene, 34,050*l.*—total, 81,325*l.*

AUSTRALIAN MINES.

YUDANAMUTANA.—I have not been able to induce Capt. Price to remain in charge of the mine; he states his principal reason for leaving to be the delicate state of health of his wife, who he would not like to take so far up the country. I advertised for fully three weeks to get a competent man to take his place, and failed to get one who had a practical knowledge of smelting. From a number of applicants I chose Mr. T. W. Cornelius, who was formerly under captain on the mine. I have also reverted to the former arrangement by appointing Mr. Mansell foreman of the smelting works. If you could engage a thoroughly competent practical smelter, one who understands keeping the furnaces in proper order, it would be advisable to do so (a man with these qualifications is not to be had here), and if competent he might take the management of the mine, and have the assistance of a captain over the miners. I am of opinion that it is more important he should have a knowledge of smelting than of mining, of course both would be preferable. If this could be done the services of the superintendent might be dispensed with. Mr. Charles Lawrance, the present secretary, being quite competent to transact all the business required at the town office.—The Mine: I regret to say that the ore coming up is much poorer than when I first saw it. At present there are no rich branches of sulphurets to bring up the average quality, but in the mine there is an almost inexhaustible quantity of sulphuret ore that would produce from 5 to 7 per cent. of copper. Working in this ore-y ground rich veins and branches have frequently been met with, which have all been followed as far as practicable, and the rich ore taken out, consequently leaving a large quantity of the poorer ground to be removed; when this is done no doubt the richer lodes will again show themselves. With a plentiful supply of water the whole of the ground should be taken out, rich and poor together, and properly dressed, when a large profit must be the result.—Finance: The enclosed statement of assets and liabilities shows a large debit balance: much as I regret this, it has been unavoidable on my part. I have made every effort to regain our former good position, the loss of which has been caused to a great extent by the severe wet weather, the failure to obtain a sufficient supply of water from the engine-shaft, as was expected, to draw the poor ore now being raised from the mine, together with the high rate of wages demanded by miners and others, and the great fall in the price of copper, have all occurred since my appointment, and to these incidents I attribute our present position. My attention has been called by the manager of the Bank of Australasia to the state of the company's account. He requests me to get the directors to make satisfactory arrangements for 2000*l.* or 3000*l.* with the London office, and advise him of the results when completed. Indeed, it is absolutely necessary that such an arrangement should be made, as I am not inclined to sanction the issue of money orders and the contraction of debts with an uncertainty as to their being paid.—Returns from Nov. 25 to Dec. 30: Copper made, 23 tons 7 cwts. 1 qr.; copper dispatched, 26 tons 3 cwts. 1 qr.; copper on hand, 2 tons.

PORT PHILLIP AND COLONIAL (Gold).—Clunes, Dec. 31: The quantity of quartz crushed during the four weeks ending Dec. 4 was 5312 tons; pyrites treated, about 26 tons; total gold obtained, 927 ozs. 10 dwts., or an average per ton of 3 dwts. 12 grs. The receipts were 3583*l.* 14*s.* 7*d.*; payments (including 355*l.* paid on account of firewood), 3859*l.* 2*s.*; loss, 275*l.* 7*s.* 5*d.*, to which was added last month's debit balance of 1245*l.* 1*s.* 8*d.*, making a total debit balance of 1520*l.* 9*s.* 1*d.* During the two weeks ending Dec. 17 the quantity of quartz crushed was 2345 tons; pyrites treated, about 12 tons; total gold obtained, 343 ozs. 19 dwts., or an average per ton of 2 dwts. 22¼ grs. The directors have also received the following telegram, dated Clunes, Feb. 14: "Month ending Jan. 28, yield per ton 3 dwts. 13 grs., yield improving; sinking shaft; stoping western deep level."

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney, dated Dec. 30, with reports from the Lambton Colliery to the 26th of that month. The month of December not having been completed at the date above mentioned, the return of sales of coal for that month could not be fully made up. The sales up to the 27th of the month amounted to nearly 13,000 tons. A corrected return of the sales for the previous month of November has been received, showing the amount of those sales to have been 15,753 tons, instead of 14,616 tons, as reported last month.

AUSTRALIAN UNITED.—Mr. Kitto (Fryerstown, Jan. 2) writes: In order to open up and thoroughly develope the Central Mine great expense has been gone to during the past three months, whilst only one-third of the miners have been engaged on profitable work. Next mail should advise you of much more cheering results. On Mr. Lamb's return from Tasmania I presume he will furnish you with his usual monthly accounts. After long negociation with Mr. Tucker for the ground to the north and west of the Central Mine, I have failed to secure it for your company, as I could not agree to his terms—viz., a cash payment of 100*l.*, 8 per cent. on the gross yield of gold, and immediate and compulsory operations, separate and distinct from the Central. Another company agreed to his terms, and have the lease. I am sorry I did not get the ground; but it would be impossible to comply with his general conditions, even if the royalty were satisfactorily settled, seeing that fresh capital of at least 15,000*l.* would be necessary.

ANGLO-AUSTRALIAN.—Capt. Raisbeck reports to Mr. Kitto:—"Jan. 2: I have the honour to report progress since the 5th ult.—East Shaft: The men have sunk since the above date 12 ft., put in a frame set 8 in. by 8 in. for carrying lift, and secured with timber 21 ft. of shaft: present depth of shaft 234 ft. Very little alteration in the country since last report.—West Shaft: We have driven the western cross-cut at the 220-ft. level 24 ft.; the last 8 ft. in sandstone, and much stronger stone than we expected. We got through into slate last night. I expect it will continue to the lode. Present end from shaft 100 ft. I hope to report more favourably on this part of the mine next month. The tributors have crushed for the month—J. Williams, 1 oz. 5 dwts. tribute 12*s.* in the pound; C. Stocks, 2 ozs. 15 dwts., tribute 12*s.* in the pound; R. Davis, 3 ozs., 4 dwts., tribute 10*s.* in the pound." Mr. Kitto also writes:—"You will observe by Capt. Raisbeck's report that we have not yet cut the lode in the western cross-cut of the western shaft, but expect to do so daily. The ground has been rather hard, and the Christmas holidays have interfered with the work. The ground in the eastern engine-shaft is pretty good, and considerable progress should be made in the sinking during the ensuing month."

YORKE PENINSULA.—The directors have advices from the Committee of Inspection at Adelaide, dated Jan. 2, with reports from the Kurilla Mine to Dec. 30. The following are extracts from Capt. Anthony's report:—Since my last report I have driven 3 fms. 4 ft. in the 25, west of Deeble's shaft, at 15*l.* and 16*l.* per fathom. The lode has yielded but very little ore, although it has never been destitute of it, and of very rich quality. It maintains its regular course, and carries a good wall, but the stratum is still unsettled. * * * As, however, the driving is less expensive and tardy than formerly, I shall more rapidly prove the western ground, of which I still have a high opinion. At the 15, west of Deeble's, I have driven 5 fms. 2 ft., at 7*l.* and 9*l.* per fathom, through a lode 2 ft. wide, containing stones of rich grey ore, although not sufficient to give it a money value. I am extremely anxious to see these drives kept on right through the western ground to the boundary line, and should be glad to be able to keep six men instead of four in each, the sooner to prove the value of the lode, as well as to proportionately lessen the cost of engine, &c. * * * The driving of these levels is a piece of sound mining * * * A few men are again returning from the other colonies, but they are yet scarce, and none have fallen in to work our tribute ground. * * * I have about 10 tons of ore being dressed up, but it will not be ready for several days. The engine and pitwork are in fair condition, and working well.

ENGLISH AND AUSTRALIAN (Copper).—Port Adelaide, Jan. 3: There are three furnaces roasting and two smelting at Port Adelaide. Since date of last advices 35 tons of copper had been shipped.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received ex steamer Ebro, *via* Southampton:—

SINKING IN VERTICAL SHAFTS DURING DECEMBER:—
A sunk 3 fms. 0 ft. 0 in.—Total depth, 142 fms. 3 feet 2 inches.
B sunk 3 fms. 0 ft. 10 in.—Total depth, 140 fms. 3 feet 3 inches.

The sinking is small for December, owing to circumstances referred to in my last. At present, however, fair progress is being made; the rock in the sumps, especially in B, being a little more favourable for boring and blasting.

Advices received Feb. 17, ex steamer Boyne, *via* Southampton.

Morro Velho, Jan. 17.—GENERAL OPERATIONS: The general work has been conducted with regularity, and fair duty has been done at the various places where the force has been engaged. The weather has, on the whole, been favourable for this season of the year.

PRODUCE.—The total produce extracted during the month of December amounts to 1208 9-10ths oits. It has been derived as follows:—

At Morro Velho—	
Re-treatment of sand by arrastres	360·0 oits.
Ditto at Praia by arrastres	431·2
Being sand taken from the Rego	791·2
At Fernam Paes—	
Gaia mine stamps 189 tons—2·210 oits. per ton	417·7
Total	1208·9 oits.

The supply of mineral obtained at Gaia was insufficient to keep the stamping constantly at work. The yield may be considered above the average from that quality of ore.

During the month there was some old sand treated with the mineral, which increased the gold return a little.

COST IN DECEMBER, MORRO VELHO.

Labour and other charges, less sum received from Road Contracts, Rs. 3369 8460, at Exchange 26¼*d.*		£368	10 9
The gold returns being	792 2 oits.		
Less loss melting	15 8		
	775 4 at 8*s.* per oit.	310	3 2
The result showing a loss for December		£78	7 7

FERNAM PAES ESTATE.

The cost at Gaia was Rs. 1756 8020, at 26¼*d.*		£195	6
The produce being	417 7 oits.		
Less loss in melting	4 6		
	413 1 at 8*s.* 6*d.* per oit.	175	11
Showing a loss of		£19	15 11

VERTICAL SHAFTS AIR SURFACE WORKS COST.

Sinking and timbering Rs. 10,168 8862, at 26¼*d.*		£1112	4 4
Surface work and tramway, Rs. 4244 8108, at 26¼*d.*		464	4 0
Total outlay		£1576	8 4

The outlay both for material and labour has been kept as low as practicable.

MINE.—Our mining work has been limited to the working of the formation at Gaia and some repairs effected at the West Quebra Panella in connection with the pumping arrangements there.

Gaia has given but a limited quantity of mineral, the lode being now small and the ore only accessible in the sink below the tram level.

A small force has been placed to clear the workings of the Matto Virgem Mine on the Fernam Paes Estate.

REDUCTION DEPARTMENT.—The work in Morro Velho has been chiefly in collecting sand from the course leading to the Prairie Works and having it treated in the arrastres.

VERTICAL SHAFTS.—The general duty has been performed pretty regularly, and the timber and pitwork have had sufficient force employed in them to keep forward the work.

SINKING.—During the first fifteen days of January the following sinking has been effected in the shafts:—

A has been sunk 1 fm. 4 ft. 5 in.—making total depth, 144 fms. 1 ft. 5 in.
B has been sunk 1 fm. 5 ft. 8 in.—making total depth, 142 fms. 0 ft. 11 in.

Total sinking ... 3 fm. 4 ft. 1 in.

Our sinking has been impeded and delayed for a few days by the use of a bad quality of percussion caps.

MINERAL TRAMWAY.—The greater part of this tramway has now been laid in the tunnel, with such material, partly used, raised as we could command here.

A little has been done towards the requisite mechanical arrangements for adapting the Bahu hauling wheel to work and draw the mineral-wagons on this tramway from the vertical shafts.

GOLD EXTRACTED TO DATE.—The produce obtained for the first division of January, being a geriod of 12 days, is as follows:—

MORRO VELHO.	Oitavas.
Re treatment of sand by arrastres	113·9
Do. at Praia do.	82·2
Total	196·1
FARNAM PASS ESTATE.	
Gaia mineral, 50 tons, at 3·104 oits per ton	155·2
Total in 12 days	351·3

The supply of sand at Morro Velho is now almost exhausted, so that we cannot hope long to find material fer the arrastres to grind tor gold. Every practicable portion is being collected for the purpose.

DON PEDRO NORTH DEL REY.—Report for December: Produce and Cost: Produce, 6595 oits., at 8*s.* 6*d.* per oit., 2802*l.* 17*s.* 6*d.*; cost, Rs. 26,493, 8612, at 26¼*d.* per milreis, 2911*l.* 10*s.* 9*d.*: loss, 108*l.* 13*s.* 3*d.*—First Division of January: Produce, weight to date, 1532 oits.—Mine Captain's Letter dated Jan. 17: The general ore extracted these last two weeks has been much the same in quality as that previously reported on, and taken from the reserves in No. 8 shoot. A small quantity of box work has again been obtained from the southern stopes in No. 8 towards the bottom of the mine. This (No. 8) lode was struck in the 30 cross cut on the 13th inst., and a general sample taken from the end, which showed excellent strake work. This is a good indication of a continuation of its auriferous quality in depth. Exploratory operations are being continued as usual, but nothing fresh discovered.

GENERAL BRAZILIAN.—Capt. T. Treloar, Jan. 14: The collapse of the adit at Itabira, the filling up of a portion of Moore's shaft, and the crushing together of excavations at the old adit St. Anna during the late heavy rains was disheartening, and the want of Cornish miners to arrest mischief in season vexations. But I rejoice to say that appearances are now more cheerful. Most matters are becoming pretty well in hand, and my hopes strengthened that in a few months I shall prove that St. Anna and Itabira Mines are rich or poor. I have never doubted the former.

ROSSA GRANDE.—Report for December: Cost: The cost for the month, inclusive of 17*l.* 12*s.* 2*d.* charged on account of labour in excavating for a stamps at the Bahu, is Rs. 7113 8512, at Exchange 26¼*d.* = in sterling 741*l.* 14*s.* 11*d.*, and a total force of 145·2 has been employed.—Mina de Serra Corrego: 16 tons of ore have been put to pile from this corrego during the month, and in washing the same 14 oits. of gold have been extracted, the value of which alone will more than cover the working cost.—Samples: The gold obtained from samples taken during the month amounted to 24 oits.—First Division of January: Extract from letter dated Jan. 16: Bahu: Operations in this mine are being forced on with all possible speed. The lode in the sump-shaft continues about 6 ft. wide, and presenting a very favourable appearance. The lode in the 28 east is at present 4 ft. wide, of average quality. The lode in the 28 west is 3 ft. wide, of fair quality. The lode in the 18 and 10 is without change since my last. On the 8th current a winze was commenced on bottom of the 10 west, and 15 fms. west of sump-shaft, the object of which is to ventilate the 18 west, and to facilitate stoping the lode.—Cachoeira: Since the first of the month our force has not been sufficient to continue sinking Richard's shaft, having at present a few hands only to spare for this mine. The only points that have been under operation are the 10 and the 20 east, and in these levels the lode is without change since my monthly report. Ore put to pile from this mine during the month, 9 tons.

JAVALI.—The directors are in receipt of advices from their manager, Capt. Sohns, under date of Jan. 5, of a very satisfactory character. The following are extracts from his report:—Owing to the Christmas holidays the mill had only worked 18 days, and crushed 1200 tons of quartz, 1040 of which are taken from the deposits I wrote you about in my last, and which are of enormous value. I have made several cuttings, and the ground which has been opened out contains not less than 100,000 tons, and this is only one part; to estimate the whole it will be necessary to make further explorations; the other 160 tons were taken from Pollock's tunnel. The remittance is 462 ozs. 13 dwts., being an average of 8 dwts. per ton, and is valued at 1300*l.* Expenditure for the month, 577*l.* 8*s.* 1*d.*, which includes 100*l.* on account of new machinery, leaving a profit of 722*l.* 11*s.* 11*d.* on the months' working. All the new machinery has arrived out.

SAO VICENTE.—Extract from letter dated Jan. 16: The mining operations for the month have been very limited. At the Brucutu Mine No. 1 level has been driven 54 ft. on the course of the line, which has been securely timbered; samples have been taken showing traces of gold in the bates, but of no value to the company. Nine sets of timber in which the dry rot had settled have been replaced by new ones. A little has been done in the deep adit, but our force being so reduced we could not do much. In Bernardo's adit several failing sets of timber have been replaced by new ones. At the Sao Vicente operations are confined to the large deposit of quartz, and making a rough road for carrying the ore from thence to Dawson's stamps. The stamps have also been undergoing repairs.

BATTLE MOUNTAIN.—Capt. Richards, Jan. 23: The drift north from Daniel's winze in the bottom of the 113 ft. level is producing good ore: it has improved during the past week. A stope is being opened in the back of this drift which yields a little ore. The 113 ft. level now being driven north is producing some leaf copper, mixed through a clay, and presents the same appearance as that which was found in the 113 ft. level in the Lake Superior. In the 73 ft. level north there is no ore, and the ground is hard and slow of progress. Hooper's rise in the back of the 73 ft. level is progressing favourably and produces some rich ore.

—Capt. Richards, Jan. 30: Since my report of last week there is no change in the appearance of the mine. I think the prospects very encouraging. There are 5171 sacks awaiting shipment.

ANGLO-ARGENTINE.—W. J. Holman reports for November: Total produce of gold for the month amounts to 515 ozs. 10 dwts., extracted from 950 tons of ore, equal to 10 dwts. 20 grs. per ton of ore stamped; an insufficient supply of stamps strakes blanketing caused us some difficulty during the month, but this article has been forwarded from Rosario, and I expect it here daily. The stone-breaker is completed, and works admirably; we have no difficulty in crushing 10 tons of rock per hour; this machine will effect a great saving in preparing ore for stamps. Good progress has also been made with the drain from the Marayes waterspring to the reduction works; our force is small on this work, but I hope after the harvest is over that the supply will again equal our requirements. Great advantages will be derived from the additional water from the above named springs. I hope in the course of the week to have the 10-in. plunger-lift to work to return the filtered water to stamps and engine. All our mechanics have been employed on general work.—South Mine: The works are progressing most satisfactorily, the level being driven south at section Chairman is in its course leg… lode; other points from which ore is being obtained remain just … last commented on. Facilities have also been added for the ex… mines, and but two men are now employed at that work on … of the establishment not quite so good as could be desired—several … and dysentry.

EMMA.—Telegram, Salt Lake, Feb. 17: Raised 18… class ore last week: 260 tons of first-class ore at railway depot; 6… ore at mine. Mine in good working order. Explorations prog… torily. Sold 110 tons.

SAN PEDRO.—By advices under date Jan. 3, the … writes:—"I am glad to inform you that the San Pedro Mine is … indeed. We have 10 carts at work, carrying 3500 quintals … monthly. I have paid 10,000 to Messrs. Huth, Grunning, and … of the company, and retain about 5000 for current expenses.

ALMADO AND TIRITO.—Telegram received by M… December profit for month, 9945*l.*, equal to 1891*l.* sterling. Profit … deducting London expenses, 1765*l.*

CRESCENT (Gold), California.—Capt. Stetson, Jan. 30: … got the water out to the 3rd level, and the large pump put in … finely. I am now hoisting out the other pump, and putting the … together, and will have all in good working order by this night … are safe from being troubled with water in the mine. All around … should not accomplish getting the water out this winter.

CAPE COPPER.—Capt. Tonkin, Dec. 31: Returns: Ore … of 34 per cent.; Spectakel, 87 tons of 33 per cent. The supply of … the dressing-floors had shown a decided improvement, owing to … tion of the harvest. Capt. Tonkin reports the erection of improv… ratus driven by steam at Ookiep, from which good results … Further improvements were being made by the erection of the … from England, and the engine set to work them. These and other … templated in this department will, it is anticipated by Capt. Ton… saving in cost and in waste of copper in the operation of … The transport of ore by the railway was proceeding at the rate of … month, and Mr. Hall anticipates that by about the middle of Feb… sion of the line will reach the point where it will meet the high-… from Ookiep. The amount of transport will then, of course, be … as the distance upon which the mule wagons travel over the unfi… materially lessened. Arrival at Port Nolleth—The Mabel, to load … of ore. Bills of lading received—285 tons of ore and 62 tons of … wood. Arrivals at Swansea—Antonio Vinent, with 620 tons of … Daniel, with 510 tons of ore and 26 tons of regulus. Sales—By … Feb. 11, 5·50 tons of ore, ex Sea Foam, at 17*s.* 6*d.* per unit, realising … 15,150*l.*; and on Feb. 19, by private contract, 330 tons of ore, at … 17*s.* 9*d.* per unit.

WEST CANADA.—Jan. 21: Wellington: There is a … bottom of the 35, east of Bray's shaft, where the lode will yield … ore per fathom.—Huron Copper Bay: The lode in the stope in the … east of Bray's shaft, will yield 2 tons of ore per fathom, and in … bottom of the 35, west of Palmer's shaft, the lode will produce 1½ … fathom.

BENSBERG.—J. W. Hoffmann, Feb. 15: The weather … changeable this week, snowing, freezing, and raining alternately, … retarded work. From the open-cast we got carbonate and very … The north level was driven 6 ft. further, making a total of 12… provement in the ore. The south level is now 15 ft. long; the ore … harder, with particles of ore. The pit-frame is ready for putting … be done on Tuesday next. More machinery has been delivered … complete. The preparatory continuous jiggers, steam elevator, &c., … still wanting. The fitters are now at work connecting the engine … ing-floors. We shall sample 80 to 90 tons of ore this month. We … of ore:—Carbonate, 25 tons, of 40 per cent. average assay; two … 7 per cent. average assay. Stock of ore on hand ready for market …

MENZENBERG.—R. K. Roskilly, Feb. 18: Since the … increased quantity of water in Dickens's shaft below the 24, which … has compelled us to suspend its sinking, we have been engaged in … road, and also making foundation for loading, &c. The latter … pleted, and in the former good progress has been made, as the … men have been employed on it. We have given the surplus of … in conformity with the Government Act, which will expire on the … flux of water we met with in this shaft (Dickens's) is a favourable … judging therefrom I am led to believe that we are in close … and looking at the improved appearance in the character of the … point, its intersection may be looked forward to with encourag… ple used indeed to inform you that a great improvement … ther, and that the masons have again resumed their work. … with the building of the boiler house and stack will be brought … important work in order to have the same completed as soon as … masons are also making good progress in covering in the engine … I hope will be finished by the end of next week.

LUSITANIAN.—Feb. 11: Palhal: The lode in Taylor's … below the 160 fm. level, is worth 2 tons of ore per fathom. In the … in the 160, at the eastern side of the shaft, the lode is also worth 2 … —Levels on Basto's Lode: The 160 fm. level is still going east on … 1½ ton per fathom; and west on a lode now yielding 1½ ton per … 150 east the lode is yielding ¾ ton per fathom. In the 150 west … slide lode, and have now suspended the driving. In the 130, east … the lode is large, and composed of quartz and flookan. In the … same direction, the lode is 6 ft. wide, composed of quartz and ore … fathom. In the 120 east, on the north part, the lode is 2 ft. wide … quartz. The lode in the 90, east of River shaft, is 1½ ft. wide, … and schist. In the 80 east the lode is 3 ft. wide, composed of … lead. In the 70 east the lode is small, but well defined, having … branch in the 38 fm. level, west of slide lode, is 1 ft. wide, worth … —Mill Lode: In the 18, east of Taylor's, the lode is 8 in. wide, … fathom. In the 38, west of slide lode, the lode is 6 in. wide, very … —Slide Lode: In the 140 fathom level, south west of Taylor's, … wide, composed of flookan. In the 130 fathm levels, south-west … of Taylor's, the lode is 1 ft. wide, composed of flookan and … cross-cut, south of branch, west of Perez' shaft, the ground is … —Winzes on Basto's Lode: In No. 92 winze, sinking below the … shaft, the lode is 5 ft. wide, worth ¼ ton of copper ore per fathom … below the 150, west of Taylor's, is going down on a lode producing … In the rise above the 110, against No. 86 winze, east of River shaft, … ¼ ton per fathom. The lode in No. 94 winze, below the … east of Taylor's, is 4 ft. wide, and is composed of quartz and … Carvalhal: Cross cuts: In the 60, north of incline-shaft, the ground … In the opposite end we have cut nothing more, and have now … Great Lode: We have suspended the driving of the 60, east of Incline … the lode is very poor. In the 40 east the lode is 1½ ft. wide, … country, and mundic. The flookan lode in the adit level, west of … 1 ft. wide, unproductive.

[For remainder of Foreign Mines, see to-day's Journal.]

SILVER IN BOLIVIA.—According to the *South Pacific* … Caracoles Silver Mines, in Bolivia, are increasing in richness in … greater depth is attained. A piece of ore weighing about 200 lbs. … 300 marks has been taken out of the Descada Mine, while from the … there has been extracted a piece of ore weighing about 650 lbs. of … to 1000 marks.

UNITED STATES PRECIOUS METALS.—Messrs. Wells … report the precious metals products brought forward in 1872 … $62,236,913, being nearly $4,000,000 in excess of the product of 1871 … is confined to Utah and Nevada.

CHEMICALS AND MINERALS.—(Messrs. J. Berger … Manchester, Feb. 20)—Soda: Cream caustic, 60 per cent., 22*l.* to 23*l.* 5*s.*; soda ash, 31½*d.* to 32*l.* 5*s.*; soda crystals, 8*l.* to 8*l.* 5*s.*; … salt cake, 4*l.* 5*s.* to 4*l.* 10*s.*; Glauber salts, 4*l.* to 4*l.* 5*s.*—Borax … Nitrate of Soda: 15*s.* 9*d.* to 16*s.* 3*d.*—Potash: Muriates, 80 per cent., … f.o.b.—Prussiate: Red, 3*s.* 2*d.*; yellow, 1*s.* 5*d.* to 1*s.* 6*d.*; chlorate, … 8½*d.*; potashes, 38*s.*; pearl ashes, 47*s.*—Saltpetre: Foreign, 28*l.*; … refined, 36*s.*—Alum: 8*l.* 5*s.* for loose lump; in export barrels … 9*l.*—Bleaching Powder: At 14*l.*—Ammonia—Sulphate: White … brown, 17*l.* 10*s.*, 23 per cent.; carbonate, 7*d.*; muriate, 32*l.* to … 1sts, 49*s.*; 2nds, 43*s.*—Iron Salts: Green and rusty … peras, 55*s.*—Copper Salts: Sulphate of copper, 22*l.*—Arsenic … powdered.—Acid: Tartaric, at 1*s.* 8½*d.*; oxalic, 9½*d.* to 10*d.*; … to 3*l.* 15*s.*; carbolic, 1*s.* 4*d.* to 1*s.* 6*d.*—Magnesia: Epsom … for refined.—Pitch: 32*s.* 6*d.*—Benzole: 30 per cent., 3*s.* 3*d.*; … 90 per cent., 4*s.* 6*d.*—Wood Pulp: Moist, 14*l.* per ton of dry … China Clay, 34*s.* to 40*s.* per ton.—Pyrites: Spanish cupreous, … 10*d.*—Phosphates: Ordinary, 60 per cent., 1*s.*; high strength, … 1*s.* 4*d.* to 1*s.* 5*d.* per unit; Estramadura, 1*s.* 3*d.*; super … per cent., 3*l.* 10*s.* to 3*l.* 12*s.* 6*d.*; precipitated phosphate of lime, … 5*l.* 10*s.* to 6*l.* 10*s.*—Manganese: Ores, 140*s.* to 145*s.* for 70 per cent. … matite, 30*s.* to 35*s.*; oolitic, 7*s.* 3*d.* to 8*s.* 3*d.*

PEAT IN LANCASHIRE.—There are in North Lan… neighbourhood of Garstang, vast tracts of lands which are not … cultivation, but would yield millions of tons of peat, which after … subjected to hydraulic pressure would be ready for use by the … public.

AT HOME AND ABROAD.—We have on more than … called the attention of our subscribers to the advantages of mining … Cornwall. Each month only serves to prove that our confidence … productiveness of the Duchy was not unwisely placed. Take, for … an Dinas and Wheal Mary; here are two pits that would seem to … with the renowned jewel cave in Aladdin, if the wealth already … workings may be taken as a criterion of what we may further expect … is already being paid on the shares, and in all probability before … Monitor" is published this may be doubled. We are continually … by announcements of high-sounding mining enterprises abroad, and … is promised in fabulous quantities. How often these promises are … verified by those who have been drawn into what not unfrequently … a hollow speculation. But here, in the south-western extremity of … El Dorado, which seemingly will never fail; here, where mining … been conducted on the most extensive scale for centuries, we are … surprised by some new find. Indeed, the Cornwall people, suffering … not unfrequently refuse to believe in the wealth which lies at their … instance, the case of Wheal Mary; when it was first worked the … it in hand showed a lamentable ignorance of the prize in their … very richness of the ore brought to the surface was not understood, … ings were neglected, until Mr. W. J. Thompson, with a clear perception … vantages of the property, re-opened it. The result is now being … faction of all concerned. We only think it right to draw attention … great mineral wealth of Cornwall, and we strongly advise our readers … rowly the many really good things now in the market; and we … tion, especially point out the Roche district as giving remarkable … *Investors' Monitor.*

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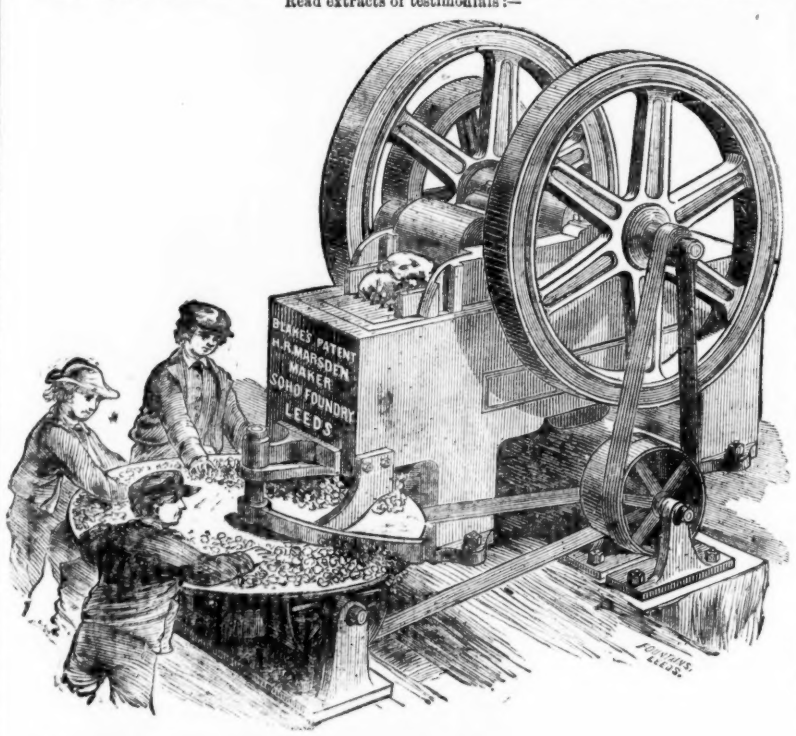

The Parys Mines Company, Parys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last 12 months, and Capt. Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.
For the Parys Mining Company,
H. R. Marsden, Esq. JAMES WILLIAMS.

The Van Mining Company (Limited), Van Mines, Llanidloes, Feb. 6, 1871.—Our machine, a 10 by 7, is now breaking 180 tons of stone for the crusher every 24 hours. I may say, of all our machinery, that for simplicity of construction and dispatch in their work, they are equal to anything in the kingdom, but your stone breaker surpasses them all. W. WILLIAMS.
H. R. Marsden, Esq., Leeds.

Chacewater, Cornwall, Jan. 27, 1869.—I have great pleasure in stating that the patent stone breaker I bought of you some three years ago for mines in Chili, continues to do its work well, and gives great satisfaction. It crushes the hardest copper ore stone—put it through ½ inch size by horse power—with great ease. I can safely recommend it to all in want of a crusher: can be driven by steam, water, or horse power.
H. R. Marsden, Esq. JAMES PHILLIPS.

Terras Tin Mining Co. (Limited), near Grampound Road, Cornwall, Jan. 1871.—Blake's patent stone crusher, supplied by you to this company, is a fascination—the wonder and admiration of the neighbourhood. Its simplicity is also surprising. Persons visiting it when not at work have been heard to remark, "This can't be all of the machine." It will crush to a small size from 8 to 10 tons of very hard and tough elvan rock per hour; taking into its leviathan jaws pieces of the hardest rock, weighing 200 lbs. or more, masticating the same into small bits with as much apparent ease and pleasure as does a horse his mouthful of oats. On every 100 tons of the rock crushed by the machine there is a direct saving to the company of not less than £5 over the process of hand labour previously adopted by them, and the indirect saving much more, the machine being ever ready to perform the duties required of it. It breaks the stuff much smaller, and in form so fitted for the stamps, that they will pulverise one-third more in a given time than when performed by hand labour.
JOS. GILBERT MARTIEN.
H. R. Marsden, Esq., Leeds.

Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quartz. WM. DANIEL.

Ovoca, Ireland.—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour.
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General Frémont's Mines, California.—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or $75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate. SILAS WILLIAMS.

Your stone breaker gives us great satisfaction. We have broken 101 tons of Spanish pyrites with it in seven hours. EDWARD AARON.
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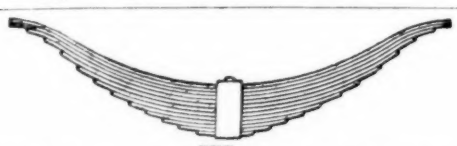

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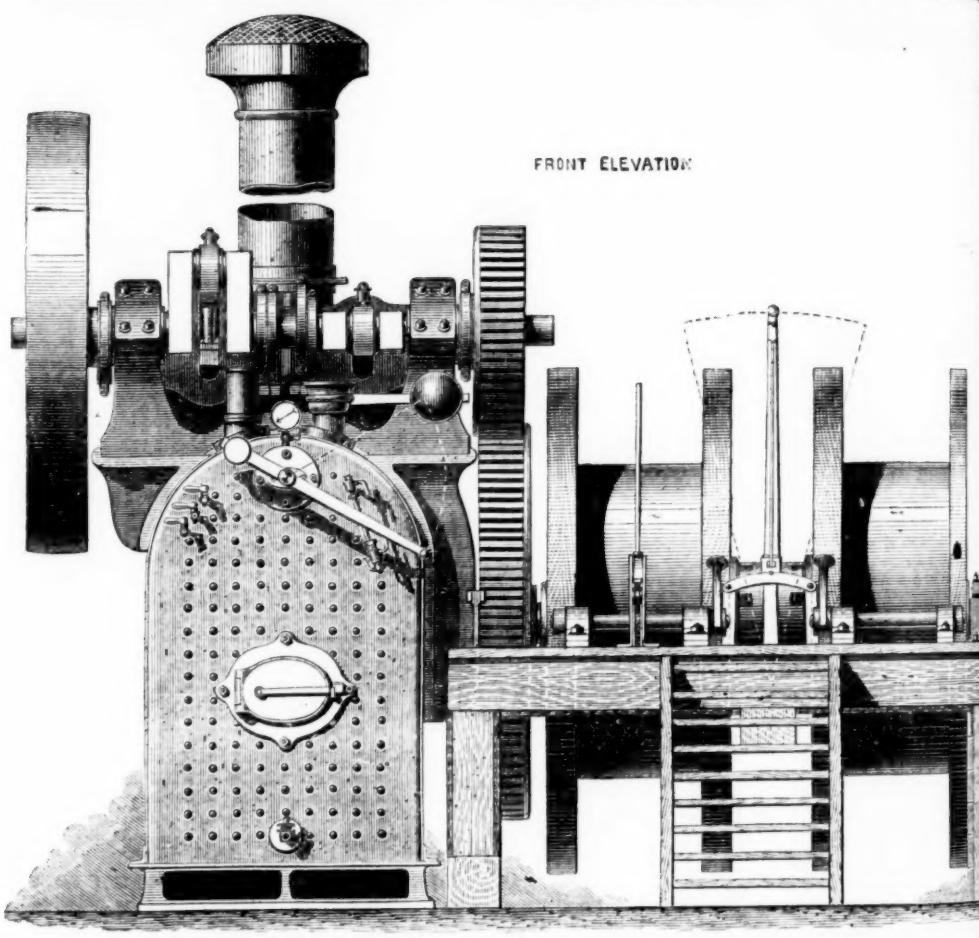

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HAULING AND WINDING ENGI

WITH

PATENT DRUM WINDLASSES,

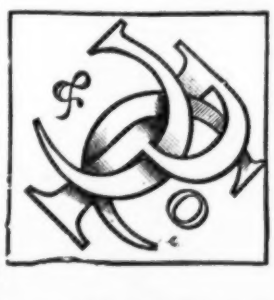
FOR MINING PURPOSES.

This Engine is specially commended to Mining Engineers and others, as by its adoption—
Haulage along inclined drifts is easily and cheaply effected;
The expense of sinking new shafts is greatly reduced, neither foundations nor engine-house being required;
It is available not only for winding, but for pumping, sawing, &c.—a great desideratum at a large colliery;
It can be very quickly removed (being self-propelling), and fixed in any desired position.
Prices and full particulars on application as above, and also references to view the engine in successful work near Derby, Haverfordwest, Darlington, Durham, Penzance, and other places.

THESE ENGINES WORK WITH MARVELLOUS ECONOMY IN FUEL.

CHAS. PRICE AND CO.'S RANGOON ENGINE O

AS SUPPLIED TO H.M. DOCKYARDS AND FLEET.



THIS OIL is suitable to every kind of Machinery. As a lubricant it is equal to the best Lard Oil, while it possesses the great advantage of being entirely free from any principle to corrode the metal bearings.

For particular kinds of Machinery, the Oil may be specially prepared of a consistency and adapted to the nature of the work to be done.

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PATENTEE AND SOLE PROPRIETOR.

This celebrated ROCK DRILL, which by reason of its inherent merits has superseded all other Rock Drills, is now in extensive use in America, England, Scotland, and the Continent, and is indispensable in the economic working of all Railway Cuttings, Shafts, Quarries, and Mines.

Its prominent features are:—

I.—ITS SIMPLICITY.

Any labourer can work it, and it does not get out of order. It may be worked either by air or steam power, at will, without any alteration of the mechanism.

II.—ITS DURABILITY.

No part of the mechanism is exposed; it is all enclosed within the cylinder—so there is no risk of its being broken.

III.—ITS CAPABILITY.

…like granite, gneiss, ironstone, quartz, the Tunnel Drill will progress at the incredible rate of 6 inches to 12 inches …minute. These machines can bore holes from 1 inch up to 5 inches in diameter, and, on an average, will go through 120 feet …per day—making 40 holes each from 2 to 3 feet deep. The drill can be used at any angle, and in any direction, and will …feed clear itself to any depth up to 20 feet.

IV.—ITS ECONOMY.

…compared with hand labour the saving in actual drilling is very considerable, from the fact of the "out put" being increased …fold. The saving in the general expenses, and in the interest of capital, will be in a like ratio.

DRILL POINTS.

…saving in steel alone is incredible, ONE DRILL POINT WILL GO THROUGH TWENTY FEET OF ABERDEEN GRA… WITHOUT SHARPENING. This fact will be duly appreciated by practical men.

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THOMAS BROWN,

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The peculiar advantages which enhance the value of this Machine in the estimation of those who have it in practical use are—

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2.—The heat generated by compression of the air is reduced to *nil*.

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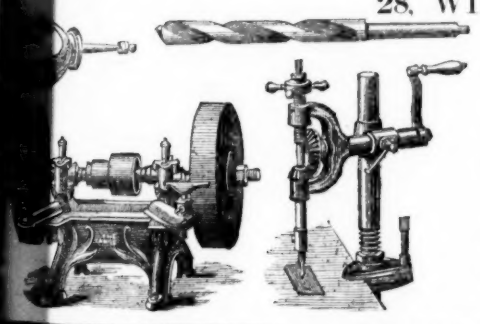

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C. C. and Co. are prepared to give quotations and execute indents for American Goods of all descriptions, to be shipped to any port.

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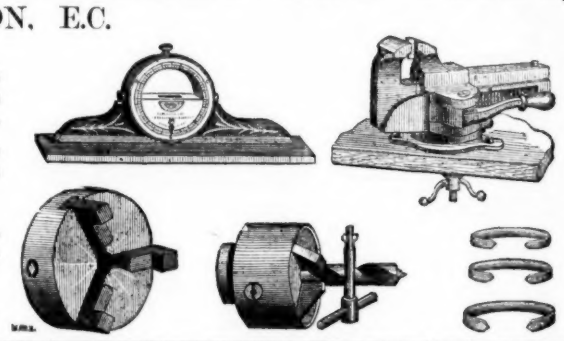

PEPPER MILL BRASS FOUNDRY COMPANY,

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COLLIERY FURNISHERS,

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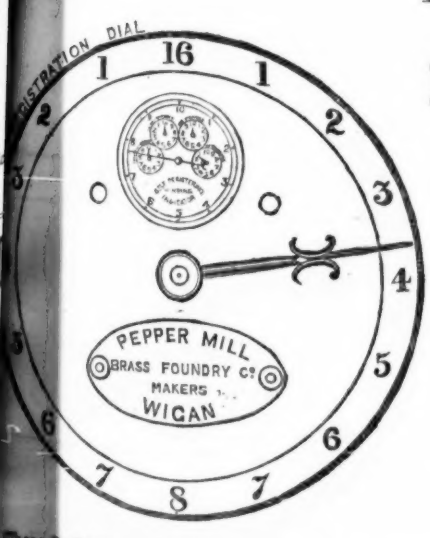
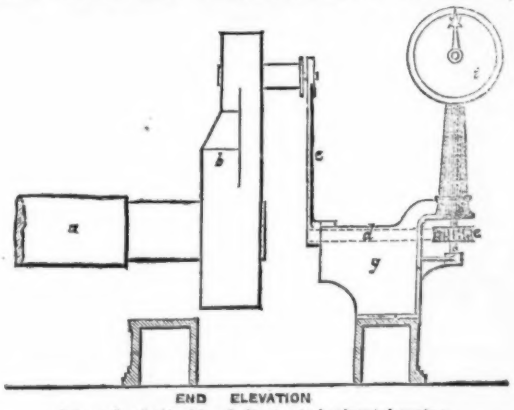


The PEPPER MILL BRASS FOUNDRY COMPANY beg respectfully to invite attention to their IMPROVED SELF-REGISTERING COLLIERY WINDING INDICATOR, which, in addition to its ordinary use of indicating the position of the load in the shaft, registers the number of windings, thus enabling the manager at a glance, and at any moment, to check the return of the banksman or tallyman, by reading off from the dial the number of windings for any stated time.

This Indicator is especially adapted for Water Winding or Pumping. Its indications cannot possibly be tampered with, and unerringly show the number of windings or strokes for any stated period, so that it will at once be seen whether or not the person in charge has been fully discharging his duty.

These Winding Indicators are supplied either with or without the Self-registration Dial.

The Pepper Mill Brass Foundry Company will be glad to furnish, on application, sets of drawings illustrative of the simplest and cheapest mode of attaching their indicators to engines of various constructions, either vertical or horizontal.



END ELEVATION

One mode of attaching Indicator to horizontal engine.

These Indicators have been supplied to most of the principal Collieries in Lancashire, including Wigan Coal and Iron Co. (Limited); Ince Hall Coal and …annel Co. (Limited); Messrs. Jonathan Blundell and Son; John Grant Morris, Esq.; Messrs. Pearson and Knowles; Messrs. Andrew Knowles and Sons' …annock and Rugeley; Mostyn Coal and Iron Co.; Messrs. Pilkington Bros., St. Helens.

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CORNWALL WORKS (TANGYE BROTHERS), BIRMINGHAM,
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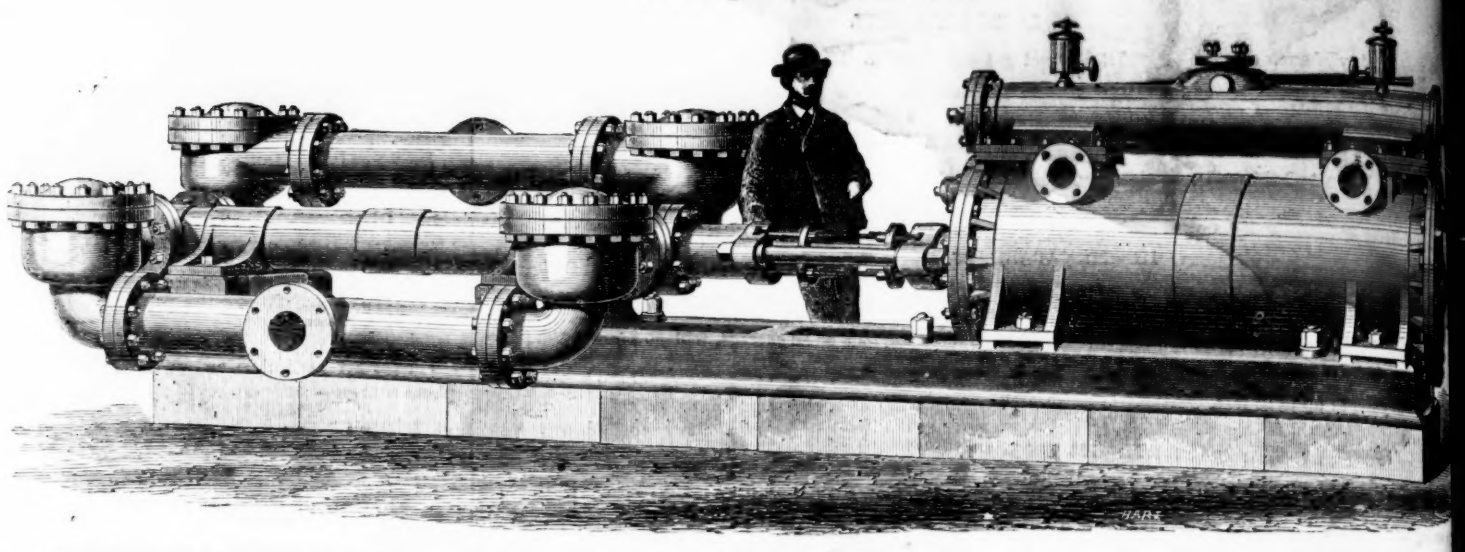
SOLE MAKERS OF

THE "SPECIAL" DIRECT-ACTING STEAM PUMPING EN

FOR FORCING WATER FROM MINES.

Nearly 3000 in Use.



The "SPECIAL" Direct-acting Steam Pumping Engines require no costly Engine Houses or m foundations, no repetition of Plunger Lifts, ponderous Connecting-rods, or complication of Pitwo allow a clear shaft for hauling purposes.

Extract from "ENGINEERING," September 6th, 1872:—

"The accompanying engraving illustrates a large specimen of the 'Special' Steam Pump, which was brought before the public about four years since by Messrs. Tangye Brothers and Holman. The Pump is the invention of Mr. S. Cameron, of New York, and since its introduction Messrs. Tangye have turned out nearly 3000 from their works.

"These pumps are of various sizes, and at first only small ones were made, but as their usefulness became developed the manufacturers designed pumping engines on the same principle for use in collieries. They were first applied to this purpose in the Newcastle collieries about three years since, and through the efforts of the late Mr. A. Stansfield Rake, under the direction of Messrs. Tangye, about 130 of these pumps had been introduced—principally in the collieries of the Durham and Newcastle districts, up to the end of 1870. They were adapted to perform the required duty—varying in almost every case—of forcing from 1000 to 10,000 gallons per hour from depths ranging from 100 to 500 ft. The succes of this system of pumps led Mr. J. Bigland, the manager of Messrs. Pease's Bishop Auckland Collieries, to conclude that it was adapted for yet heavier work. The result of his investigations into its working led to the manufacture of the engine we have illustrated, for the Adelaide Collieries, belonging to Messrs. Pease, at Bishop Auckland.

"The construction of the Special Steam Pump is so well known that we need now do no more than refer to the dimensions of the various parts. The steam cylinder is 26 in. diameter, and the pump —which is double acting—is 6½ in. diameter, with a 6-ft. stroke. The slide valve is steam-moved, and its alternate action is effected by means of two steel reversing valves, operated by the piston in the interior of the cylinder at either end. Hence there is no external mechanism except the piston rod, a few inches only of which is seen reciprocating between the stuffing boxes of the steam and pump cylinders. In the contract it was stipulated that the engine should raise 120 gallons per minute 1040 ft. high in a single lift, and this is more than accomplished, with apparently as much ease as if its load was delivered at only 100 ft. high.

"The engine-room at the Adelaide Collieries is situated at a depth of 1040 ft. below the surface, and is an arched chamber, about 100 ft. long by 20 ft. wide, and 10 ft. high at centre. At the far end of this chamber is a double-flued boiler, 27 ft. long and 7 ft. in diameter. Placed between the boiler and the shaft is the pumping engine we have been describing. It was started on June 6, 1871, and Mr. Bigland reported that, having measured its duty, he found the average of seven trials to be 137 gallons per minute, thus giving a higher duty than was stipulated for in the contract.

"A still larger Special Steam Pump than the one already described has since been made by Messrs. Tangye for Mess lieries, Silverdale, Staffordshire. The steam cylin is 32 in. in diameter, and the water cylinder 10½ 6 ft., and the engine has to raise 22,500 gallons per Two out of eight engines for some extensive coal are also in a forward state; each of these engine of raising 150 gallons per minute, or 9000 gallons high. This system of underground pumping engi carries with it the recommendations of simplicity a with a small number of mechanical parts. Its first moderate, as compared with the method of raising depths by a series of 40 or 50 fm. lifts. Its practi tested in 1867 by the award of a silver medal by the Polytechnic Society, which is composed chiefly of In fact, these engines appear to solve a very impor question in mining operations—viz., the most econo tive means of deep mine drainage. Their success blished in the coal mines of Durham and Newcastle reason why their adoption should not follow, as in the copper and tin mines of Cornwall, some of wh depth; and especially for foreign mines, where fuel ence and economy are of paramount consideration."

The "Special" Steam Pumping Engines are in use at the following among many other Collieries:—

Adelaide Colliery, Bishop Auckland	3 Pumps.	North Bitchburn Colliery, Darlington	2 Pumps.	Stott, James and Company, Burslem	
Acomb Colliery, Hexham	1 „	Newton Cap Colliery, Darlington	1 „	Straker and Love, Brancepeth Colliery	
Blackfell Colliery, Gateshead	1 „	Normanby Mines	1 „	Seaton Delaval Coal Colliery, near Newcastle	
Black Boy Colliery, Gateshead	1 „	Oakenshaw Colliery	1 „	Thornley Colliery, Ferryhill	
Castle Eden Colliery	2 „	Pease's West Colliery	2 „	Thompson, John, Gateshead	
Carr, W. C., Newcastle	4 „	Pease, J. and J. W., near Crook	5 „	Trimdon Grange Colliery	
Etherley Colliery	1 „	Pease, J. and J., Brandon Colliery	1 „	Tudhoe Colliery	
Gidlow, T., Wigan	3 „	Pegswood Colliery, near Morpeth	2 „	Vobster and Mells Colliery	
Haswell, Shotton and Easington Coal Company	3 „	Pelton Fell Colliery	1 „	Widdrington Colliery, Morpeth	
Lochgelly Iron and Coal Company	2 „	Railey Fell Colliery, Darlington	1 „	Whitworth and Spennymoor Colliery	
Lochore and Capeldrae Cannel Coal Company	6 „	Right Hon. Earl Durham, Fence Houses	1 „	Westerton Colliery, Bishop Auckland	
Leather, J. T., near Leeds	2 „	Skelton Mines	1 „	Wardley Colliery, Gatesheld	
Lumley Colliery, Fence Houses	1 „	South Benwell Colliery	5 „	Westminster Brymbo Coal Company	
Monkwearmouth Colliery, Sunderland	1 „	St. Helens (Tindale) Colliery	1 „	Weardale Coal and Iron Company	

PARTICULARS OF THE "SPECIAL" STEAM PUMPING ENGINES SUITABLE FOR HIGH LIFTS IN MINES.

Diameter of Steam Cylinder ...Inches	6	8	10	8	12	16	10	14	18	21	14	18	21	26	16
Diameter of Water Cylinder ...Inches	3	3	3	4	4	4	5	5	5	5	6	6	6	6	7
Length of Stroke ...Inches	24	24	36	24	36	48	24	36	36	48	36	36	48	72	36
Strokes per minute ...	30	30	20	30	20	15	30	20	20	15	20	20	15	10	20
Gallons per hour ...	2,200	2,200	2,200	3,300	3,300	3,300	6,100	6,100	6,100	6,100	8,800	8,800	8,800	8,800	11,900
Height in feet to which water can be raised with 40 lbs. pressure per square inch of steam at pump	240	425	665	240	540	960	240	470	775	1,058	330	540	740	1,140	312
Diameter of Suction and Delivery ...Inches	2	2	2	3	3	3	3½	3½	3½	3½	4	4	4	4	5
Diameter of Steam Inlet ...Inches	¾	1½	1½	1½	2½	2½	1½	2½	3	3½	2½	3	3½	4	2½
Diameter of Exhaust ...Inches	1	1½	1½	1½	2½	3	1½	2½	3½	4	2½	3½	4	5	3

PARTICULARS, &c.—*Continued.*

Diameter of Steam Cylinder ...Inches	30	18	24	30	32	18	24	30	36	21	30	36	42	26	36
Diameter of Water Cylinder ...Inches	7	8	8	8	8	9	9	9	9	10	10	10	10	12	12
Diameter of Stroke ...Inches	72	36	48	72	72	36	48	48	72	48	72	72	72	48	72
Strokes per minute ...	10	20	15	10	10	20	15	15	10	15	10	10	10	15	10
Gallons per hour ...	11,900	15,660	15,660	15,660	15,660	19,800	19,800	19,800	19,800	24,400	24,400	24,400	24,400	35,240	35,240
Height in feet to which water can be raised with 40 lbs. pressure per square inch of steam at pump	1,100	300	540	840	960	240	427	665	960	264	540	780	1,062	282	540
Diameter of Suction and Delivery ...Inches	5	6	6	6	6	7	7	7	7	8	8	8	8	10	10
Diameter of Steam Inlet ...Inches	5	3	4	5	5½	3	4	5	6	3½	5	6	7	4	6
Diameter of Exhaust ... Inches	6	3½	5	6	6½	3½	5	6	7	4	6	7	8	5	7

PRICES OF THE ABOVE ON APPLICATION.

Any combination can be made between the Steam and Water Cylinders, to suit Height of Lift and Pressure of Steam.

TANGYE BROTHERS & HOLMAN, 10, Laurence Pountney Lane, London.

Printed by RICHARD MIDDLETON, and published by HENRY ENGLISH (the proprietors), at their office, 26, FLEET STREET, E.C., where all communications are requested to be addressed.—Feb. 22, 1873.